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211 S. CHEYENNE AVE., TULSA 1, OKLAHOMA

FOUNDED IN 1910 BY PATRICK C. BOYLE

Subscription rate to the petroleum industry, United States and foreign, 1 year, $3.00. Single copies, 20 cents. Back copies, when over a year old, 50 cents. Note: Payments from outside the U.S.A. may be in the form of an international money order or check on a U.S.A. bank. Entered as second-class mail matter at Tulsa, Okla., under Act of March 3, 1879.

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Vol. 47, No. 11 July 15, 1948

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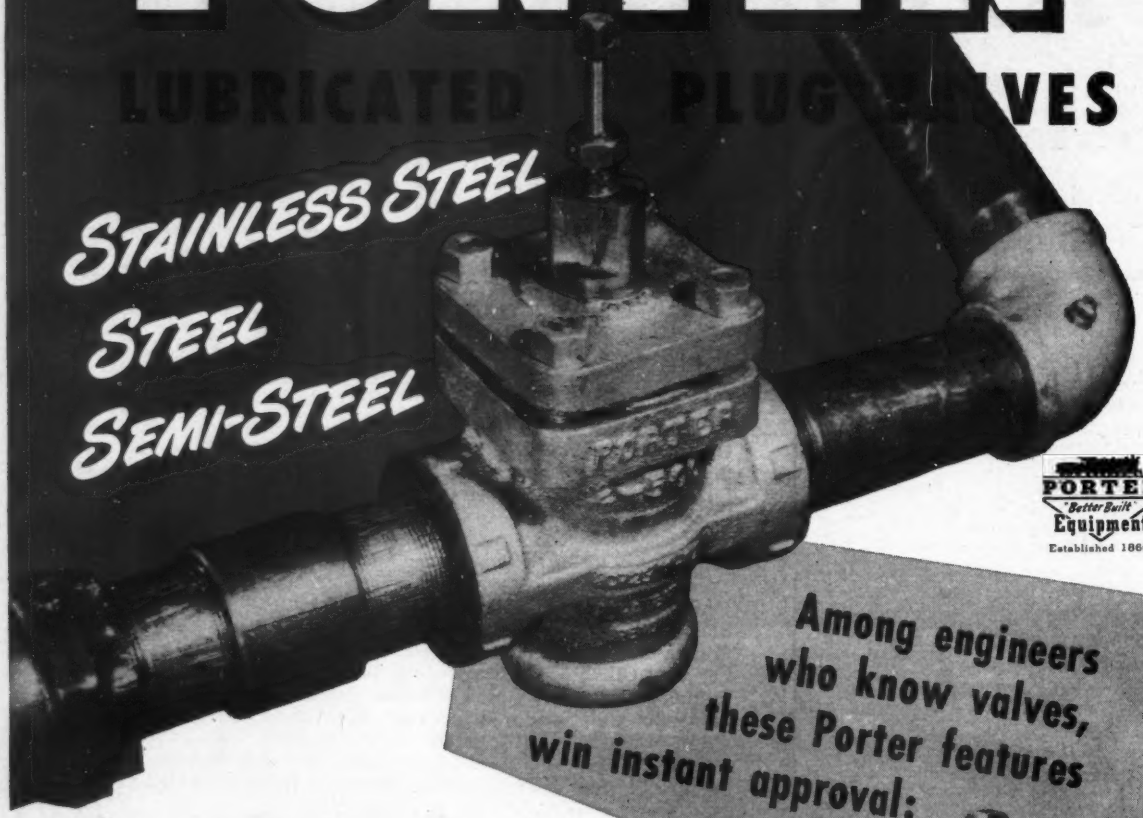

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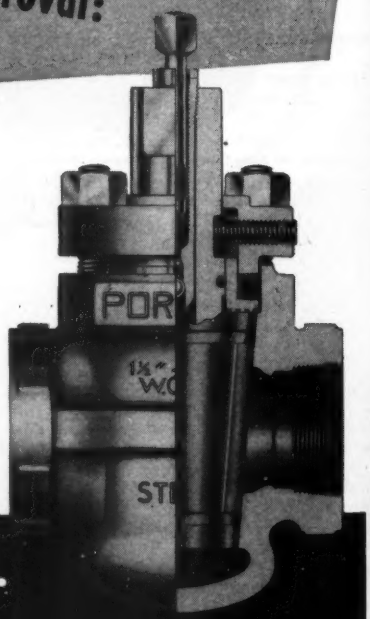

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THE OIL AND GAS JOURNAL

Look To The Grass Roots

THE outgoing director of the Oil and Gas Division, in what may be his final public utterance in that capacity, last week warned the oil industry that the greatest present threat of government control lies not in the executive branch but in Congress.

Max Ball accepted that post primarily because he saw a chance to be of service to the industry by getting rid of holdover war controls and preventing new ones from being imposed. As head of OGD he spent a good deal of his time convincing his government colleagues and superiors that no federal regulation was necessary to straighten out the many problems of adjusting the oil industry to postwar conditions.

But he found that even more of his time was consumed in presenting the same arguments to several score individual members of the House and Senate, and in appearing before a dozen Congressional committees which were investigating the oil industry or proposing regulatory legislation. He was successful at both ends of Pennsylvania Avenue, but his mission is not completed nor will it ever be.

Eternal vigilance is the price of freedom, and this applies with special force to the oil industry, charged as it is with so much public interest and national concern. In spite of all the lip service given private enterprise, the spirit of the day still seems to be to look to the Government when anything appears to be going wrong. Only constant effort to demonstrate to government officials and to their masters, the public, that the industry is doing things better by itself will stem the threat of regulatory legislation.

It may not have been generally appreciated that, as Ball pointed out, the most numerous and drastic proposals for federal control originated not only in Congress but with members of Congress affiliated with the political party which has done the most shouting in support of free enterprise and in denunciation of bureaucratic administration.

There are two lessons here. The first, age old but particularly timely this week, is that party platforms mean much less than the creed and caliber of the individuals elected to office.

The second is that the oil industry must look to the political grass roots for its safety. Congressmen, by and large, reflect the attitudes of their constituents. If the voters believe the national oil resources are running out or being wasted, that the oil industry is a greedy monopoly, that supplies are being held back or inequitably distributed, Congressmen will echo these views and the threat of control will continue.

Oil men can lick the threat of federal control between now and November by telling their story to the voters in their precincts and by examining the philosophies of their candidates for Congress regardless of what their party platforms say about free enterprise.

Approval Expected for Oil Plan Despite Charges of Illegality

by Bertram F. Linz

WASHINGTON.—Despite the opposition of Rep. Walter C. Ploeser of Missouri, who made a last-minute effort to stop the industry's voluntary agreement, Interior Department officials this week expressed confidence that quick approval would be given by Atty. Gen. Tom C. Clark.

Ploeser's opposing run was made after the public hearing last month, when he called a session of his House small business committee to hear independent distributors and retailers who had attacked the agreement, and thereafter wrote letters to Clark and Interior Secretary Krug in which he charged the agreement failed to meet the requirements of Public Law 395 because of the omission of a finding that there is a shortage of oil and, accordingly, it was merely a "plan for a plan" to be adopted in the event a shortage developed; that it failed to cover crude production; and that no provision was made for checking its performance to see that it attained its objective of equitable distribution of supplies at all levels.

With the exception of bringing in production, which practical difficulties made impossible, all of Ploeser's strictures have been met, either in the agreement itself or through the procedures of the Oil and Gas Division.

As prepared for Clark's approval, the agreement carries a finding by the secretary of the interior that "oil is a scarce commodity," thus bringing it squarely under the requirements of the Taft law and making it definitely a plan to meet a specific situation.

Ample Safeguards Claimed

OGD officials said they felt that an adequate check on the operations of participants could be had through the procedure that has been followed in the past when complaints were received from distributors that their suppliers had discriminated against them in cutting back their quotas. In such cases the OGD has taken the matter up with the suppliers named and in every instance where discrimination was found actually to exist corrective action was taken by the supplier. In some cases it was found that there was proper cause for the action of the supplier, arising in the normal course of business, where action by the complaining distributor to meet his obligations was needed to correct the situation.

In letters to the Interior Department and the Attorney General, Ploeser declared the recent hearing before his House small business committee developed that there is a "serious controversy" as to whether an oil shortage will develop in the near future, and asserted that this possibility is not a sufficient basis for an agreement. Other agreements, he pointed out, state in the preamble that a critical shortage now exists in the commodities with which they deal.

"The House small business committee is not technically equipped to undertake to pass final judgment on whether there is either an existing scarcity of petroleum products or whether there will be one some time in the future," Ploeser wrote. "Such a task is beyond our limited resources. But it does seem to the committee that the proposed petroleum plan has no validity unless there is a clear finding by the Secretary of the Interior that there is at present a scarcity of petroleum products and that finding is ratified by the Attorney General. If there is no such substantial existing scarcity, the proposed plan is, in our opinion, unnecessary and without benefit."

Says Independents Hurt

Ploeser also alleged the agreement does not qualify under the law because of failure to provide for priority allocation and inventory control and, he commented, "the proposed plan seems to the committee to be more in the nature of a plan to create a plan. It stresses 'equitable distribution at all levels' in the petroleum industry but fails to state clearly how that end will be achieved. Too much is reserved in the plan for future action and determination which, on the face of the proposed plan, cannot be known."

Suspension of the antitrust laws, Ploeser said, was intended by Congress to be limited to cases of "real necessity" and where the suspension "would not operate to the prejudice of those who were supposed to be protected" by the statutes, but in the proposed plan "the interests of independent producers of crude oil and independent refiners of crude oil have been deliberately excepted.

"No plan for the petroleum industry under Public Law 395 will be acceptable unless it makes provision to include the interests of all business in the industry," he declared. "Furthermore, such a plan should include some method to check its performance so that its professional objective to distribute equitably at all levels will be realized.

"Due to the high concentration existing in the petroleum industry, it is only natural that the remaining independent business in it should be apprehensive about a voluntary plan which provides no machinery for detecting when it is abused," Ploeser added. "Our committee can discover no such check in the proposed petroleum plan. In order to build confidence and to merit the cooperation of independent business in the petroleum industry under the proposed petroleum plan, the committee is of the firm opinion that a disinterested party or agency should be empowered to make a check periodically upon the operation of the plan."

Changes Made in Connally Act Enforcement Staff

WASHINGTON. — Appointment of James R. Lewis as chairman of the Federal Petroleum Board which administrates the Connally "Hot Oil" Act, was announced last week by Interior Secretary J. A. Krug.

Lewis, who joined the department's oil enforcement staff in December 1933 and was made a member of the board in November 1946, succeeds Ray O. Armstrong, who has resigned because of ill health. Armstrong was made a member of the board in May 1940 and has been chairman since April 1945.

Krug also announced that Jack Peterson, examiner-in-charge of the Kilgore office, will fill the vacancy on the board created by Lewis' elevation, and Selman J. Jones, examiner-in-charge of the Midland office, will become an alternate member.

Special Master Appointed To Hear Tidelands Case

WASHINGTON.—D. Lawrence Groner, recently retired as chief justice of the District of Columbia Court of Appeals, has been named by Supreme Court Chief Justice Fred M. Vinson to serve as special master in the California tidelands case.

Appointment of a special master was urged by California to take evidence on conflicting claims of the state and the Department of Justice to oil-bearing areas of the coastal lands over which the Supreme Court said a year ago the United States had "paramount rights."

In its June 23, 1947, opinion, the Supreme Court did not delineate the exact boundary lines between federal and state jurisdiction, and the Attorney General and California officials have been unable to agree on ownership of three important oil-bearing areas.

Sinclair's Texas-East Coast Line May Close Four Small Refineries

IN the first step of a long-range program of concentrating its refining in large plants and distributing products by pipe line, Sinclair Oil Corp. has closed the Fort Worth refinery of Sinclair Refining Co. and ultimately may abandon or curtail operations at three other refineries along the route of its products pipe line now under construction from the Texas Gulf Coast to East Chicago, Ind.

Sinclair's program is a rather novel plan for conducting its manufacturing in large plants near sources of crude and distributing products by means of long-distance pipe lines. The program is being watched with considerable interest as indicating a possible general trend in refining and distribution practices.

The main refining centers of the Sinclair organization are at Corpus Christi and Houston, Tex., close to crude supplies; at Marcus Hook, Pa., supplied by tankers from the Gulf Coast or abroad; and at East Chicago, Ind., served by crude pipe lines from the Mid-Continent.

A products line from the Marcus Hook refinery reaches west to Sinclair's East Chicago refinery. A line has been completed from Houston to Arlington, Tex., with spurs to Fort Worth and Dallas. This line has a daily capacity of 25,000 bbl. and is the first leg of the company's products line extending from the Houston refinery to its East Chicago plant. It is planned that this line will be extended from Carrollton, Mo., to St. Louis.

In addition the company has another products line, with a daily capacity of 20,000 bbl., extending from its Corpus Christi refinery through Victoria and Luling, Tex., to Austin, with a branch from Luling west to San Antonio.

Fort Worth Plant Closed

When the current construction program is completed, Sinclair will have products lines extending from the Houston refinery on the Gulf Coast to the East Chicago refinery on the Great Lakes and to the Marcus Hook plant on the Atlantic Coast.

A transcontinental products pipeline system with large refineries at each end and one in the center would be something unique in the oil industry.

On June 30, Sinclair closed its Fort Worth refinery, which had a crude capacity of 6,000 bbl. per day and thermal cracking capacity of 4,500 bbl. per day total charge. The equipment will be dismantled and salvaged, and employes have been given options of transfer, severance pay, or retirement.

Along the route of the Houston-East Chicago line, part of which is now under construction, are three small and rather obsolete refineries which may be abandoned and their marketing territories served by products pumped either from Texas or East Chicago as conditions warrant. These are at Sand Springs, Okla., Coffeyville, Kans., and Kansas City, Kans.

The Sand Springs plant, taken over by Sinclair some 25 years ago, has a crude capacity of 7,000 bbl. per day. The Coffeyville plant can charge 13,000 bbl. per day of crude and the Kansas City plant is rated at 12,000 bbl. per day. Each has thermal cracking units and phosphoric acid polymerization plants rated at 7,000 bbl. per day. The Sand Springs and Coffeyville plants are also equipped to make lubricating oils and waxes, which may mean that their abandonment may be deferred for some time.

Crude-oil connections serving these refineries will be diverted into the company's crude-oil pipe lines in the regions as and when the refineries are closed.

Sinclair's Houston refinery has a rated charging capacity of 73,000 bbl. per day of crude, Houdry and Thermofor catalytic cracking units with a combined rating of 20,000 bbl. per day, a thermal cracking installation which will charge 42,000 bbl. per day, and a sulfuric-acid alkylation unit rated at 1,800 bbl. per day production basis.

The Corpus Christi refinery can charge 21,000 bbl. of crude per day, has catalytic cracking capacity of 10,000 bbl. per day, thermal cracking capacity of 10,000 bbl. per day, and an HF alkylation unit.

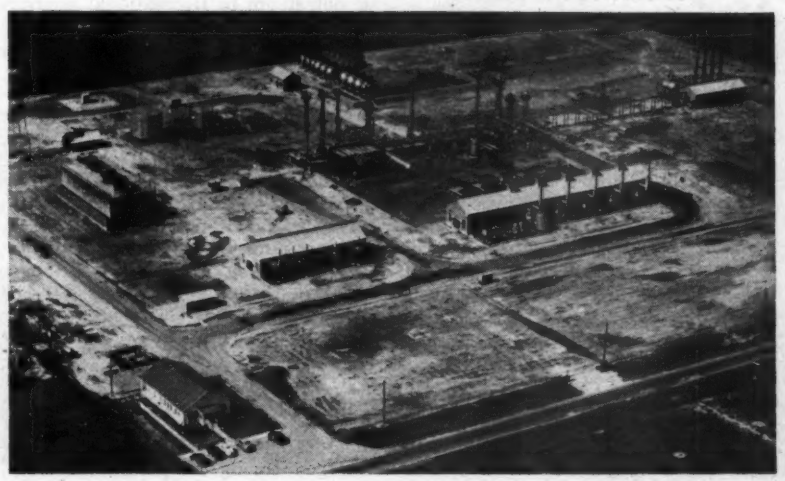
The Marcus Hook refinery has a crude capacity of 70,000 bbl. per day, catalytic cracking capacity of 25,000 bbl. per day, thermal cracking capacity of 40,000 bbl. per day, and a nonselective phosphoric-acid polymerization unit.

At East Chicago Sinclair can charge 55,000 bbl. of crude per day but construction is now in progress to raise this to 85,000 bbl. per day. This plant has 25,000 bbl. per day of catalytic cracking and 30,000 bbl. per day thermal cracking capacity, a nonselective phosphoric-acid polymerization unit, and a sulfuric-acid alkylation unit.

Sinclair also operates refineries at Wellsville, N. Y., and Sinclair, Wyo.

Gas-Processing Plant Nears Completion

THIS aerial view shows the newest gas-processing plant of Humble Oil & Refining Co. It is the Tom O'Connor field plant, a joint project of Humble and Quintana Gas Co. It produces about 60,000 gal. daily of natural gasoline, L.P.G., and commercial propane from about 35,000,000 cu. ft. daily of casing-head gas which was formerly flared in Tom O'Connor field in Refugio County, Southwest Texas. Dry residue gas is sold to Tennessee Gas Transmission Co. through a connection about 7 miles from the plant. Final finishing touches are now being made to the $3,000,000 property, although it went into full operation early this year. To halt flaring and conserve the gas as soon as possible, the compressor plant went into operation last October before the absorption facilities were completed.



House Group Says Pipe Exports Injure Domestic Oil Industry

WASHINGTON. — Officials of the Office of International Trade made a strong defense of their policies with respect to the licensing of oil pipe exports last week but failed to convince the House interstate commerce committee that they were adequately protecting the domestic industry.

Under sharp questioning by committee members, they were forced to admit that the decision to suspend further exports for the trans-Arabian pipe line until September was motivated by the uncertain situation in the Middle East and not by the requirements of domestic natural-gas companies for the large-diameter pipe involved.

So serious did Rep. John W. Heselton of Massachusetts view the situation, in fact, that he declared the export program should be put under the administration of a man whose sole function would be to protect the interests of domestic industry.

Heselton had the support of Chairman Charles A. Wolverton of New Jersey, who declared "the situation seems to be that our domestic economy has to fight to keep what it needs, when the shoe should be on the other foot."

Explaining the procedure followed with respect to licensing, Thomas C. Blaisdell, Jr., Acting Assistant Secretary of Commerce whose failure to appear when called before the committee last month brought sharp censure from Wolverton, disclosed that the third-quarter quota of steel casing and line pipe has been fixed at 136,000 tons. Requirements submitted, he said, called for more than 500,000 tons.

Claims Exports Cut

Blaisdell reported that requests for the export of 134,700 tons of seamless casing and pipe had been cut to 60,000 tons, and applications for 177,548 tons of welded casing and pipe to 45,000 tons. Requirements of 42,135 tons of seamless black pipe were cut to 10,000 tons, and a quota of 21,000 tons of welded black pipe was set up against requirements of 49,455 tons.

About 70,000 tons of the third-quarter quota of 110,000 tons of tubular goods is destined for Latin America, about 35,000 tons for the Middle East (none for the trans-Arabian line) and 5,000 tons for the Far East.

Members of the House committee placed some stress on the OIT's recent permit to export 12,000 tons of pipe for the Anglo-Iranian line, Wolverton inquiring as to how officials satisfied themselves that the British could not furnish pipe required by one of their own companies, and why we were allowing them to keep their steel to put into ships while we furnished steel for their pipe lines. OIT officials explained that the British mills cannot make large-diameter pipe and that their production of pipe up to 16 in. is only about 10,000 tons a month, considerably below the capacity they could reach if they had the steel.

The committee also expressed interest in the fact that allocations for American companies operating in South America have been reduced so badly as to endanger the ability of the companies to carry out expansion programs, with members stressing the proximity, safety, and stability of Western Hemisphere reserves as compared with those of the Middle East.

Asked whether the trans-Arabian needs had anything to do with the cutting of South American quotas, Blaisdell denied that they entered into the limitation of first-quarter exports to 25 per cent of requested requirements and second-quarter exports to 50 per cent, explaining that the Saudi Arabian project was supplementary to the fixed allocations.

Queried as to whether the pipe would not have been available for domestic use had the trans-Arabian request been denied, OIT officials explained that the pipe might not even have been produced since the pipeline company owned the facilities installed for its production by the steel company. Other sources, however, said the pipe-line company merely had financed the installation of those facilities and did not own them.

The committee plans further hearings on the oil situation during the summer, but probably will not call any until after it returns next month from a survey of Mexico.

Jennings Heads New NPC Committee to Plan for Oiling Another Emergency

WASHINGTON.—The National Petroleum Council this week initiated a study of the organizations, procedures and policies that would be required to oil another war.

Responding to a request from Max W. Ball, director of the Oil and Gas Division, council chairman Walter S. Hallanan announced the appointment of a "committee on national petroleum emergency," to be headed by B. Brewster Jennings, Socony-Vacuum Oil Co., New York, to make the study and submit recommendations.

In his letter to Hallanan, Ball said that in view of the central importance of petroleum to the national security and welfare, "the Government and the petroleum industry should be prepared to reinstitute immediately, when and if necessary, such measures as may be determined to be necessary to safeguard and assure supplies for essential needs in times of emergency and to provide the best possible government and industry set-up to function at such a time."

Expressing the hope and expectation that such measures will never be needed, Ball nevertheless stressed the desirability of being prepared for any eventuality "in this vital segment of the Nation's economy."

A valuable service would be performed, he said, if the council would "survey the petroleum experience of the recent war and the pattern that emerged during the period 1941-1945, and would recommend such government, government-industry, and industry organizations, procedures, and policies as in its opinion would best meet the needs of another emergency should one arise."

Named by Hallanan to serve on the committee under Jennings were J. R. Parten, Woodley Petroleum Co., Houston, vice chairman; Bruce K. Brown, Standard Oil Co. (Ind.), Chicago; H. S. M. Burns, Shell Oil Co., New York; J. C. Donnell, II, The Ohio Oil Co., Findlay, Ohio; B. I. Graves, Tide Water Associated Oil Co., New York; D. A. Hulcy, Lone Star Gas Co., Dallas; J. A. Lentz, Continental Oil Co., Denver; B. L. Majewski, Deep Rock Oil Corp., Chicago; J. Howard Marshall, Ashland Oil & Refining Co., Ashland, Ky.; Glenn E. Nielson, Husky Refining Co., Cody, Wyo.; John W. Newton, Magnolia Petroleum Co., Beaumont, Tex.; S. F. Niness, National Tank Truck Carriers, Inc., Downingtown, Pa.; H. J. Porter, Texas Independent Producers and Royalty Owners Association, Houston; Claude P. Parsons, Sparton Tool Co., Houston; E. E. Pyles, Jergins Oil Co., Long Beach, Calif.; W. R. Reitz, Quaker State Oil Refining Corp., Oil City, Pa.; W. S. S. Rodgers, The Texas Co., New York; Stribling Snodgras, Bechtel Corp., San Francisco; Reese H. Taylor, Union Oil Co. of California, Los Angeles, and W. W. Vandeveer, Allied Oil Co., Cleveland.

this week

GOVERNMENT—Oil industry's voluntary allocation plan under heavy fire but approval expected. . . . ¶Congressmen still critical of exports of oil-industry pipe despite government action in tightening controls. . . . ¶NPC creates new committee to study procedure of industry-government program in case of national emergency. . . .

NATURAL GASOLINE—Nation's largest unitization plan will increase output of liquid hydrocarbons from Old Ocean field. . . . ¶Big plant nearing completion in Tom O'Connor field. . . . ¶Sun Oil Co. schedules construction of Jameson field plant early next month. . . . Plant to produce 30,000 gal. daily of liquid hydrocarbons. . . . ¶Stanolind Oil & Gas Co. acquires option on land site in Levelland field for possible plant. . . .

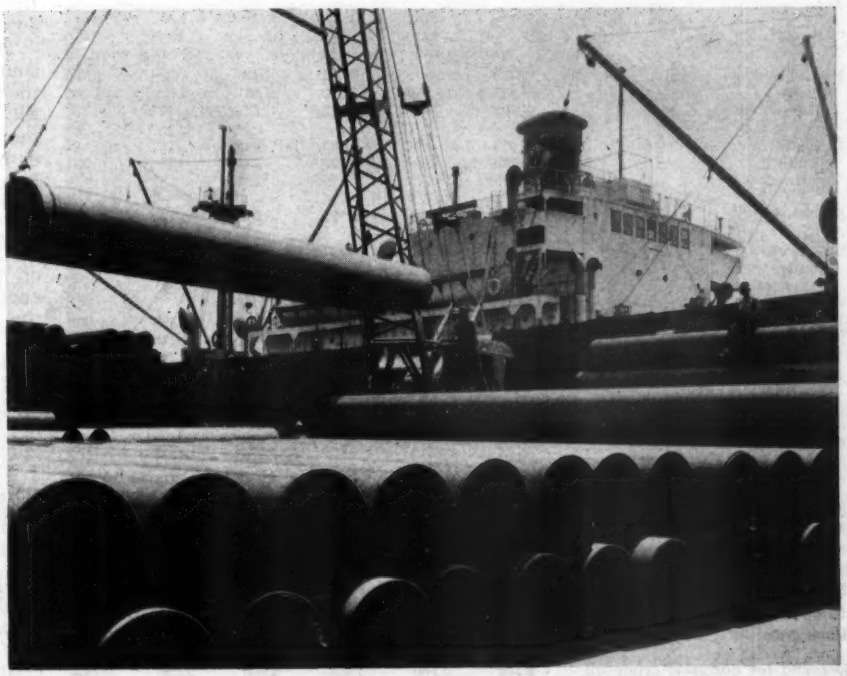
PIPE LINES—Sinclair Oil Corp. working on final links of products pipe line connecting its Texas Gulf and Atlantic Coast refineries with its East Chicago plant. . . . Will be unique operation in the industry. . . . ¶Magnolia Pipe Line Co. officially opens its Corsicana, Tex.-Patoka, Ill., crude-oil line. . . . ¶Wichita Falls terminal on the Jal. N. M.-Cushing, Okla., pipe line receives first shipments of crude. . . . Contracts soon to be let for the 24-in. line to Cushing. . . . ¶Tennessee Gas Transmission Co. awards contracts for 210-mile, 30 and 31-in. line between El Campo, Tex., and Natchitoches, La. . . .

PRODUCTION—Bureau of Mines again raises its sights in predicting demand. . . . Revised forecast for 1948 increases estimates for domestic and export requirements for gasoline and distillates. . . . ¶Drilling contractors say new safety devices speed well completions and cut costs. . . . ¶New well-logging instrument being developed by Humble engineers gives promise of aiding drilling and production. . . . ¶Gulf Oil Corp. production men exchange technical information on improving production. . . .

INTERNATIONAL—American Independent Oil Co. will pay high royalty for concession in Kuwait Neutral Zone. . . . Will take Sheik as partner. . . . Must work with Arabia. . . . Plans to start development soon. . . . ¶Far East oil industry recovering slowly from war and uprisings. . . .

REFINING—Four old and small Sinclair refineries in interior scheduled for shutdown when new products line connects company's three major refining centers. . . . Fort Worth plant already closed. . . . ¶Work progresses on new Corpus Christi petrochemical plant of Stanton Chemicals, Inc. . . . Initial production is scheduled for late fall this year. . . . ¶M. W. Kellogg Co. announces new pipe-bending process and apparatus. . . . Will handle pipe diameters up to 100 in. . . .

TRENDS—Crude runs to stills for first 6 months this year average 5,491,000 bbl. daily. . . . An increase of 628,000 bbl. daily over same period last year. . . . Texas Gulf Coast area shows largest gain, up 264,000 bbl. daily over a year ago to make this year's daily average 1,370,000 bbl. . . . Illinois-Indiana area up 78,000 bbl. to make daily average 875,000 bbl. . . . East Coast area up 61,000 bbl. to 858,000 bbl. daily. . . . California area and Louisiana Coastal area both up 59,000 bbl. to 870,000 and 425,000 bbl. daily, respectively. . . . All other areas showed gains in crude runs over last year period. . . . ¶Crude production for the week ended July 10 was 5,475,455 bbl. daily, a gain of 3,725 bbl. daily over previous week. . . . ¶Well completions for week ended July 10 dropped from 791 to 740.



The pipe being loaded on this ship is not being exported, though it was so destined when manufactured for Trans-Arabian Pipe Line Co. Due to a change in the Government's policy, export permits were denied. So it was sold to Tennessee Gas Transmission Co. and by winter will be helping to carry Texas gas to the fuel-short East. Some Congressmen think there should be more of this, as explained on the opposite page

Bureau of Mines Predicts Higher Fuel Demands in Revised Forecast

WASHINGTON. — The Bureau of Mines last week revised its forecast of 1948 supply and demand, raising estimates of domestic demand and crude runs by 1.5 and 1.6 per cent, respectively.

The new estimate places the total 1948 domestic demand at 2,172,000,000 bbl., against 1,989,000,000 last year, a daily average of 5,935,000 against 5,449,000. Crude runs are figured at 5,578,000 bbl. daily, against 5,075,000 last year.

The bureau explained that conditions have changed materially in the last 3 months, and the revised forecast reflects the amount of crude that can be handled by existing refinery capacity and the demand for products now indicated. The principal changes in estimated demand are increases of over 2 per cent for both motor fuel and distillate fuel oil and over 1 per cent for residual fuel oil.

The current estimate of production is 2,020,300,000 bbl. of crude for the year, against 1,856,100,000 bbl. in 1947, and 148,500,000 bbl. other oils against 132,700,000 bbl. The daily average demand for domestic crude now is seen as 5,520,000 bbl. against 5,084,000 in 1947.

Imports are figured at 113,500,000 bbl. of crude, against 97,500,000 last year and 68,500,000 of refined products against 62,100,000, while exports are estimated at 43,000,000 bbl. of crude, against 46,100,000, and 101,000,000 of refined products, against 118,300,000.

Last Forecast in March

Total demand is placed at 2,316,000,000 bbl., an average of 6,328,000 bbl. daily, against 2,153,400,000 bbl., an average of 5,900,000 daily, last year. Total demand figures by products (with domestic demand shown in parentheses) are as follows: Motor fuel, 913,000,000 bbl. (876,000,000), against 842,400,000 (794,800,000) in 1947; residual, 538,500,000 (528,500,000) against 529,100,000 (518,400,000); distillate, 382,500,000 (357,000,000) against 328,100,000 (298,200,000); kerosine, 123,000,000 (117,500,000) against 109,700,000 (102,500,000); all other 359,000,000 (293,000,000) against 344,100,000 (275,100,000).

The last previous forecast for 1948 made by the Bureau of Mines was released March 25. The more important changes made in the revised forecast are increases in both domestic and export demands for gasoline and distillate fuels. The estimate of domestic demand for gasoline was increased by 2.2 per cent and the forecast of gasoline exports was raised by 4.2 per cent.

Demand for distillates in this country is expected to be 2.3 per cent greater than at the time the last forecast was made and exports of this product are now estimated at 25 million barrels compared with 20.5 million barrels forecast by quarters.

The largest change in the product breakdown by quarters is in domestic demand for distillates in the second quarter. Here the new estimates are 8.3 per cent above the earlier forecast. This unexpected demand for heating fuel in an off-season period is an indication that more consumers have filled their tanks and that distributors and jobbers, not reporting to the bureau, have increased their inventories of distillate fuels.

No estimate of crude production was made in the March forecast but the daily average demand for domestic crude was given at 5,447,000 bbl. The new forecast of demand for crude of domestic origin is 5,520,000 bbl. per day or 1.3 per cent above the estimate released in March.

The bureau's revised forecast, converted to thousands of barrels daily, is shown in the accompanying table.

BUREAU OF MINES REVISED FORECAST—1948—UNITED STATES SUPPLY AND DEMAND—ALL OILS

(Thousands of barrels daily)

	First quarter actual	Second quarter estimated	Third quarter forecast	Fourth quarter forecast	Year 1948 forecast	Year 1947 actual
Production	5,739	5,901	6,022	6,038	5,926	5,449
Crude	5,347	5,500	5,610	5,621	5,520	5,085
Other	392	401	412	417	406	364
Imports	475	487	505	522	497	437
Crude	280	308	326	326	310	267
Refined	195	179	179	196	187	170
New supply	6,214	6,388	6,527	6,560	6,423	5,886
Stock changes	—102	+265	+332	—114	+95	—14
Crude	+ 38	— 47	+ 2	+ 23	+ 4	+ 1
Other oils	—140	+312	+330	—137	+91	—15
Total demand	6,316	6,123	6,195	6,674	6,328	5,900
Motor fuel	2,116	2,653	2,717	2,489	2,495	2,308
Kerosine	444	237	245	419	336	301
Distillate	1,313	863	777	1,228	1,045	899
Residual	1,584	1,405	1,353	1,543	1,471	1,449
All other	859	965	1,103	995	981	943
Exports	309	427	478	359	393	450
Crude	97	123	141	109	117	126
Refined	212	304	337	250	276	324
Domestic demand	6,007	5,696	5,717	6,315	5,935	5,450
Motor fuel	2,043	2,529	2,598	2,402	2,394	2,178
Kerosine	436	229	223	397	321	281
Distillate	1,258	786	685	1,174	975	817
Residual	1,563	1,371	1,320	1,522	1,444	1,420
All other	707	781	891	820	801	754
Runs to stills	5,372	5,600	5,660	5,680	5,578	5,075
Demand for domestic crude oil	5,318	5,550	5,610	5,600	5,520	5,084

Many Oil Bills Die With Louisiana Legislature

Only a few bills affecting the oil industry other than the drastically increased severance taxes enacted earlier in the session were passed by the Louisiana Legislature before it adjourned last week in Baton Rouge.

The trial de novo bill providing for court appeals from the decisions of the conservation commissioner was on the desk of Gov. Earl K. Long, but there was some question as to whether he would approve it. S. L. Digby, Long's new conservation commissioner, was reported opposed to the measure.

H. B. 125 providing an excise tax on natural gas equal to the difference between the price received by the producer and that paid the royalty owner was approved by the legislature and sent to the governor. H. B. 279 reducing permissible truck loads also was passed, but most of its objectionable features had been taken out by amendments.

Workmen's compensation bills also were passed. This legislation raises medical payments from $500 to $1,000 and weekly benefits to $30. H. B. 734, also approved, changes the method of computing state income taxes with a resultant slight increase for foreign corporations. Several other approved bills provide minor changes in laws relative to leasing and mineral rights.

Drilling Contractors Discuss New Safety Devices in Annual Clinic

by Carl F. Hoot

DALLAS.—Approximately 100 drilling contractors and oil-company drilling department representatives opened the third annual Drilling Safety Clinic here July 6. The yearly 2-day gathering, sponsored by the insurance and safety committee of the American Association of Oilwell Drilling Contractors, is commanding more interest each year and is gaining steadily in importance with drilling men throughout the industry. The meeting this year was attended by more operating men and fewer insurance-company representatives, indicating an increase in company acceptance of the importance of this type work.

The clinic was established primarily in order to provide a means whereby individuals interested and working on the elimination of hazards in the drilling industry could get together at least once a year and discuss their mutual problems and exchange experiences that had produced results in their individual companies in lowering the number of accidents.

Howard Holmes, president, Two States Drilling Co., Dallas, opened the Tuesday morning session. "We in the drilling industry have a common goal," he said, "which is to keep men from getting hurt, and if they are injured, to do something for them." Holmes stressed the fact that the majority of all industrial accidents are preventable, and that in drilling, compensation insurance and accident cost alone can run as much as 4 per cent of total labor cost.

Called Morale Aid

A new angle from the industry's side, he said, is the human interest now shown by employers in the safety and welfare of employes. He pointed out that crew morale is noticeably lifted when adequate and properly cared-for equipment is used in drilling. The new attitude of employer relationship is on the order of "I am my brother's keeper," and that safety of the employe is the company's obligation and responsibility, he said.

Doyle Settle, secretary, A.A.O.D.C., gave a report of the association's various activities during the past year. He pointed out that of the country's approximately 2,000 rotary drilling rigs in operation, about 4 out of 5 now receive the association's safety bulletin.

The bulletin contains drawings to illustrate safe practices, as well as common mistakes made on the drilling rig. Operators are urged to post the sheets on the rig's bulletin board.

Robert Dalgleish, safety director, Big Chief Drilling Co., Oklahoma City, discussed the use of a safety check-sheet and its application to rotary drilling equipment. Big Chief utilizes this sheet and has found it not only reduces the chance of accidents due to equipment in need of repair, but it establishes responsibility on one person, usually the driller or toolpusher.

He said that in the case of his company, checking the equipment has been made the responsibility of the daylight driller, and the check is made immediately after rigging up.

W. B. McElreath, safety supervisor, Sun Oil Co., Beaumont, Tex., opened the second day's session with a report on new safety equipment and the acceptance of such equipment by operators. In answer to questions from the group, McElreath said that various safety checks and use of safety equipment do not slow operations but ultimately add to the amount of footage drilled.

While some drillers may be slow to accept new automatic equipment, the fact that most drilling rigs are now operating with at least half of the crew inexperienced makes this same equipment's use almost mandatory, he said.

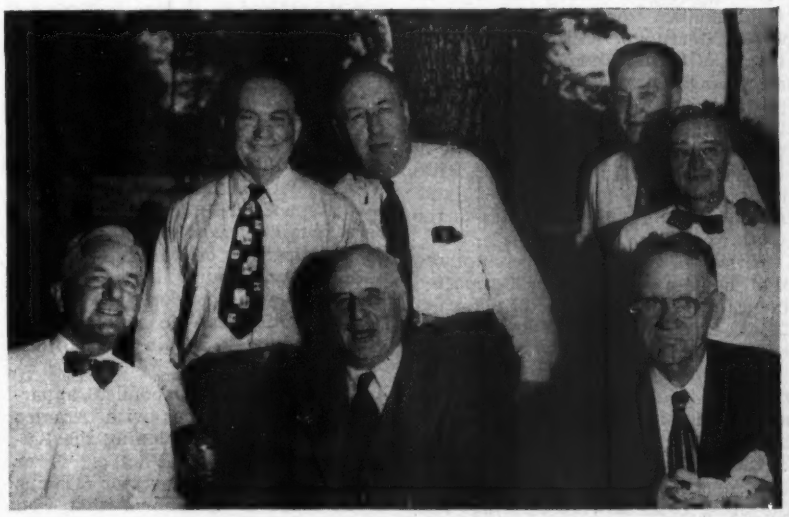
In answer to questions, McElreath said that some of the new equipment, including that designed by men on the rig, have many "bugs" to be ironed out, but that equipment manufacturers are now sending observers into the field for that purpose.

McElreath said his company was standardizing on the automatic cathead, power tubing tongs, tong retractors, and other safety equipment.

A new item to be considered, he said, is the gas-indicator device, which shows the presence of combustible gas in boat hulls or engine compartments. This piece of equipment has been brought into prominence by the advent of increased offshore drilling, where men and equipment are shuttled to the drilling site by power boats. A number of explosions have occurred, he said, when engines were started in an atmosphere of gas vapors from the craft's fuel tanks.

The meeting ended with the showing of a safety color-code film, after talks on the basic importance of use of color code, by G. M. Kintz, supervising engineer, U. S. Bureau of Mines, Dallas, and H. H. James, color engineer, E. I. du Pont deNemours & Co., Tulsa. Reports on the use of color code on drilling rigs were made by Mark Hart, Rowan Drilling Co., Fort Worth; Don Klemme, safety director, Stanolind Oil & Gas Co., Tulsa; and William B. Cox, safety engineer, Stanolind Oil & Gas Co., Houston.

CEREMONY OPENS MAGNOLIA'S NEW CRUDE LINE



Group at ceremonies at Patoka, Ill., July 10 officially opening Magnolia Pipe Line Co.'s new crude-oil pipe line from Corsicana, Tex. (Standing) G. L. Tate, vice president, Magnolia Petroleum Co.; J. L. Latimer, president, Magnolia Petroleum Co. and Magnolia Pipe Line Co.; Wallace Hawkins and R. M. Chan, vice presidents, Magnolia Petroleum Co. (Seated) Bryan S. Reid, Chicago manager, Socony-Vacuum Oil Co., Inc.; Fayette B. Dow, general counsel, National Petroleum Association; Col. J. Monroe Johnson, director of Office of Defense Transportation. *An account of the ceremonies appears on page 123 of this issue*

International

WORLD-WIDE OIL DEVELOPMENTS

Sheik of Kuwait Gets Handsome Terms For Oil Concession in Neutral Zone

by Warren W. Burns

DISCOVERY of crude oil in the Kuwait-Saudi Arabian neutral zone will call for a royalty of $2.50 per ton, approximately 35 cents per barrel, and make the ruler of Kuwait, Sheik Ahmad al Jabir al Subah, a minority partner in a subsidiary of American Independent Oil Co.

Thus, the newly acquired Middle East oil concession of American Independent will become notable because of a higher royalty than is now being paid anywhere in that area and because the ruler of Kuwait becomes, in effect a stockholder.

The Kuwait-Saudi Arabian neutral zone, sometimes called the Kuwait Nejd neutral zone, is comprised of desert territory with a maximum length of 50 miles east and west, and an average width of 45 miles. Its importance lies in the fact that the prolific Burghan field in Kuwait proper, which is now producing at the rate of 125,000 bbl. daily, is only 20 miles north and the vast oil fields of Saudi Arabia lie relatively few miles to the south.

Although geologists have explored the neutral terrain and reported favorably on the presence of oil structures, no test wells have thus far been drilled.

The widespread interest in this neutral zone in indicated by the fact that nine other oil companies also put in bids. And, as a representative of the Sheik was seeking the best offer, all concerned had an excellent idea what the other bidders were offering. The negotiations have been in progress for approximately a year.

In being granted the concession, the American Independent gave the Sheik a bonus of more than $7,000,000, according to one well-informed source who also explained that in accordance with the age-old customs of the Middle East the Sheik received another handsome gift in the form of a yacht valued at several hundreds of thousands of dollars. The ruler of Kuwait is also to receive about $600,000 a year during the exploratory period.

Arabian Agreement Required

But before American Independent commences operations it will first be necessary to obtain permission from Saudi Arabia's King Ibn Saud, since the ruler of Kuwait could grant permission only for his 50-per-cent undivided half interest in the neutral zone. Ibn Saud holds the outer undivided half and he in turn has granted oil rights in it to Arabian American Oil Co. However, no difficulty is anticipated from either Ibn Saud or Aramco as a high Aramco official told The Oil and Gas Journal last year that "there would be no objections" to negotiating a working agreement with American Independent should that company be the successful bidder. Obtaining consent of the King would appear to be a mere formality, although one source explained that the King might ponder the effect of oil production in the neutral zone upon production within the borders of his own realm.

Thus, American Independent apparently will join forces with Aramco in exploring and developing the Kuwait neutral zone. Whether it or Aramco will be the operator remains to be seen. It is known that had three other American oil companies, which joined forces in submitting their bid, been successful, Aramco definitely would have developed the area. And this still appears to be the most probable outcome.

The three companies which joined forces are reported to have been Continental Oil Co., Seaboard Oil Co., and Amerada Petroleum Corp. Their single bid was rejected. Other companies which submitted individual bids included Iraq Petroleum Corp., Ltd., Sinclair Oil Corp., Gulf Oil Corp. (which holds a 50 per cent interest in Kuwait proper), Burmah Oil Co., Ltd., Superior Oil Co., and a subsidiary of the Royal Dutch-Shell. The Shell company in submitting a bid presumably assumed that the current dispute over the famed "Red Line Agreement"—which technically would preclude an Iraq Petroleum Co. partner from being in the Kuwait neutral zone—would result in nullification of that agreement.

The fact that an American company was granted the Kuwait neutral zone concession is regarded as particularly significant for two reasons: (1) the British Government gave the Sheik of Kuwait permission to grant his share of the concession to whomever he pleased, but as Kuwait is a British protectorate it would have been easy for the British Government to put pressure on the Sheik to favor a bid from a British company; (2) the concession was granted by an Arabian ruler to an American company despite the stand which the U. S. Government has taken on the bitterly contested Palestine dispute.

That the U. S. Department of State was influential in helping American Independent Oil Co. is generally conceded. However, at least one of the unsuccessful bidders pointed out that the State Department was impartial and offered its good services to all concerned.

The State Department's principal interest was in seeing an independent oil company obtain Middle East oil

production since the other American companies with concessions there are all majors.

First official disclosure that American Independent Oil Co. had been granted Kuwait's share in the neutral zone was made last week in London by Ralph K. Davies, president of the company. In negotiating this concession, Davies said, his company feels that it has written a forward-looking and significant chapter in the history of the Middle East.

"It is the first time that a large-scale, adequately financed, oil operation has been undertaken in the Middle East by independents," he explained. "In Iran, Iraq, Saudi Arabia, and the sheikdoms of Kuwait, Bahrein, and Qatar, billions of barrels of oil reserves, and the even greater potentialities for the development of future reserves, are under the control or ownership of a few large companies or combinations of large companies in Great Britain, the United States, France, and Holland.

"This situation was not, perhaps, a matter of critical importance," he said, "so long as oil existed in surplus throughout the world and especially in the United States. However, the transformation in this country from an era of oil plenty to one of shortage, and with the shift to dependency on foreign petroleum, the absence of a strong independent element abroad raised an issue of immediate and direct interest to both the petroleum industry and the public generally.

"In the new world oil era that is upon us, it behoves the entire industry to adjust to the realities of the times. 'Competitive rivalries' and 'free enterprise' must not become mere words in the oil man's lexicon. If the petroleum industry, as we have always known it, is to survive, the independent must make every effort to find his place in world oil production."

Several Independents Involved

With the exception of Phillips Petroleum Co., which is sometimes regarded as a major, American Independent Oil Co. is comprised entirely of independent oil interests. In the 1947 Phillips' annual report it was stated that Phillips held a 27-per-cent interest in the company. It is reported that Hancock Oil Co., Long Beach, Calif., and Signal Oil & Gas Co., Los Angeles, each hold 13.3 per cent. The balance of the ownership is divided among the following: Ashland Oil & Refining Co., Ashland, Ky.; Allied Oil Co., Cleveland; Deep Rock Oil Corp., Tulsa; Globe Oil & Refining Co., Wichita, Kans.; Sunray Oil Corp., Tulsa; J. S. Ambercrombie Co., Houston; and Ralph K. Davies.

From 1941 through 1945 Davies was deputy petroleum administrator and prior to that a vice president of Standard Oil Co. of California. Should Ashland and Allied merge into a single company, as is contemplated, these two would hold a stock interest in American Independent about equal to that of Hancock and Signal.

Ashland along with Deep Rock and Globe Oil is reported to be negotiating with Anglo-Iranian Oil Co., Ltd., to purchase approximately 35,000 bbl. daily of crude oil next year. Effective date of the proposed purchase agreement presumably will hinge upon the completion date of the 20 and 22-in. pipe line from Aga Jari to the Persian Gulf Port of Mashur. Capacity of this line will approximate 100,000 bbl. daily. It may be finished by next April.

American Independent was incorporated in Delaware last year.

Geologists and some other personnel of American Independent are reported to be in Kuwait now making arrangements to progress as speedily and aggressively as possible, Davies explained. By September it is hoped to have exploratory parties in the field, and if possible to drill the initial test well some time next year. There will be relatively little trouble in laying a pipe line, for wherever oil is found in the Kuwait neutral zone it cannot be more than 50 miles from the seacoast.

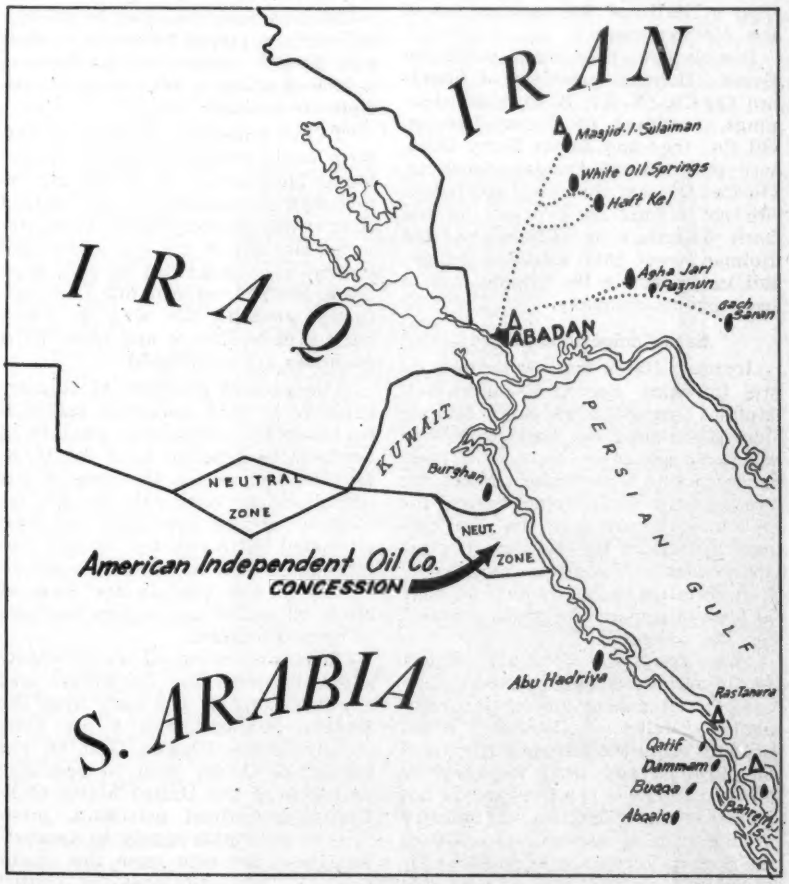
International

While no official statement has been made as the length of the American Independent concession, reliable sources state that it is probably upwards of 50 years.

There is another Middle East neutral zone which should not be confused with the Kuwait-Saudi Arabia neutral zone. This adjoins Kuwait to the east and borders on both Iraq and Saudi Arabia. It is generally known as the Iraq-Nejd neutral zone, and an undivided 50-per-cent interest is held by Iraq Petroleum Co., Ltd., and Arabian American Oil Co. There is no oil production in that area.

Another independent, Superior Oil Co. of California, is negotiating with Saudi Arabia for an offshore concession in the Persian Gulf. If granted, this would be the first concession of this type in that part of the world.

(For the only on-the-spot discussion of operations in Kuwait, along with information on the characteristics of its crude oil and its geology, see The Oil and Gas Journal, August 18, 1945, page 96.)



Map of the head of the Persian Gulf showing the Kuwait Neutral Zone in relation to other oil operations in the region

Companies Supplying Europe Oil Deny "Phantom Freight" Charges

CHARGES that the Economic Cooperation Administration is paying thousands of dollars in "phantom freight" on petroleum products purchased in the Middle East for the European recovery program because of a "world-wide basing-point system" have been denied by three large suppliers.

The charges were made by Sen. Joseph C. O'Mahoney of Wyoming in letters to Paul G. Hoffman, head of the ECA, and to the presidents of several oil companies. He declared that prices being paid are based on United States Gulf Coast prices plus transportation to the eastern end of the Mediterranean, which, he said, adds 100 per cent to the prices which the Government is paying for petroleum products for delivery in Europe. The senator attributed this to an international pricing system which, he said, "has the absurd effect of making Middle East oil cheaper at Gibralter than at Haifa at the eastern end of the Mediterranean."

Denials have been made public by Eugene Holman, president of Standard Oil Co. (N. J.); B. Brewster Jennings, president of Socony-Vacuum Oil Co., Inc.; and James Terry Duce, vice president of Arabian American Oil Co. All said that their companies are not setting their prices on the basis described by O'Mahoney, and Holman went into considerable detail in describing the pricing system used by his company.

Says Competition Exists

Jennings stated that "at no time do we (meaning Socony-Vacuum) sell Middle East goods in cargo lots on destination-delivered basis except in isolated cases where, in order to meet emergency in a particular market, we use a source of supply not normal for us." In such rare cases, he said, "we may include in the destination price an amount sufficient to recoup the transportation charges which we have to bear to replace the goods supplied for the emergency."

"We disagree," Jennings added, "with your statement that there is no competition among any of the companies, foreign or domestic, which produce oil in the Middle East. Based on our own and what we know of other companies' practices we do not feel that any 'abolition of industry pricing systems' is required." Gist of the Socony-Vacuum wire was that the company's pricing system does not operate in the manner described by O'Mahoney.

International

Duce wired O'Mahoney: "Replying to your telegram on the subject of present world pricing systems, I can report that Aramco has never sold oil or products upon the basis you describe.

"For some time all Aramco's exported production has been sold f.o.b. Persian Gulf to the four companies in our company under the option they exercise in this respect. They are now taking all the production we have been able to develop, limited as we are by U. S. Government regulations as to the amount of material such as steel that we can export to conduct our field operations in Arabia."

Holman Explains System

Holman's telegram, outlining in detail the part played by world markets and freight charges in determining delivered prices of the company's petroleum products, stated:

"To our knowledge there is no uniform world pricing system for petroleum. This company's prices are established independently and reflect competitive market conditions worldwide. Our prices are not established on the basis described in your telegram. For your information I am outlining herewith the way in which our prices to Europe and hence ECA countries are established.

"The present shortage of refinery capacity in ECA countries makes it necessary that substantial amounts of products be supplied from the Western Hemisphere. In the case of our operations we anticipate for the remainder of this year that our total estimated ECA-country import requirements will be supplied approximately 30 per cent in the form of crude oil and 70 per cent in the form of refined products.

"Regarding crude oil we anticipate supplying from the Caribbean area approximately 27 per cent, from the Eastern Mediterranean 6 per cent, and from the Persian Gulf 66 per cent, with 1 per cent of specialty crudes from the United States Gulf. Regarding refined petroleum products we anticipate supplying approximately 78 per cent from the Caribbean, 15 per cent from the United States and 7 per cent from the Persian Gulf. The minor amounts of products we previously supplied from the Eastern Mediterranean are not now available as a result of the shutdown of the Haifa refinery.

"Our prices for supplies from these various sources are arrived at as follows: Crude oil from the Caribbean area for all destinations is sold f.o.b. Caribbean supply points at the competitive Caribbean price. Including the transportation advantage at the published U. S. Maritime Commission rate of the Caribbean over the United States Gulf this results in a delivered price to Europe 24 cents per barrel lower than the delivered price to Europe for United States crude. Our announced f.o.b. prices for crude-oil supplies at the Eastern Mediterranean or Persian Gulf are equivalent to the Caribbean price for crude plus freight at published U. S. Maritime Commission rates from the Caribbean to Western Europe less freight on the same basis from either the Eastern Mediterranean or the Persian Gulf depending on the supply point to Western Europe.

"Thus ECA countries such as Italy, nearer the Eastern Mediterranean and the Persian Gulf, receive the benefit in terms of freight of their closer proximity to the source of supply, and ECA countries in Western Europe receive Middle East crude oils at a delivered cost no higher than if they had been purchased in the Caribbean. In Italy, for example, this results in a delivered crude-oil price 80 cents per barrel lower than the United States Gulf price plus freight at the U.S.M.C. rate to Italy.

Freight Benefit Allowed

"Our products supplied from the United States Gulf are priced at the low of Platt's posted Oilgram prices. Our products supplied from the Caribbean, which is the major supply source, are sold f.o.b. Caribbean at Platt's low United States Gulf price to the European purchaser who thus receives the benefit of the freight advantage to Europe that the Caribbean has over the Gulf. For the relatively small amount of products moved from our supply sources in the Persian Gulf to European countries our price f.o.b. Persian Gulf is either the low of Platt's Gulf price or such lower price as will afford the purchaser as low a delivered cost as obtainable from the lowest competitive source.

"You will note that in our case supplies from all points outside of the United States are delivered to all ECA countries at substantially less than the United States Gulf price plus freight to destination.

"Our prices as outlined above are arrived at independently. They afford ECA countries the full benefit of competition as well as of lower freight rates due to location with respect to supply points."

Far East Oil Industry Recovering Slowly from War and Uprisings

International

THE year 1947 will be marked as the reconstruction year for the petroleum industry in the Far East, according to E. W. (Jack) Berlin, production executive of Standard-Vacuum Oil Co., who summed up last year's oil operations there in a paper written for the American Institute of Mining and Metallurgical Engineers and just made available.

Due to the unsettled political situation in some parts of the Far East it is still difficult to obtain accurate information. However, last year the situation was worse, a factor which accounts for the relatively late presentation of this A.I.M.E. paper. *(A.I.-M.E. discussions on other foreign oil areas were published by The Oil and Gas Journal, February 19, page 73; February 26, page 93; and March 4, page 46).*

In South Sumatra properties of the Royal Dutch-Shell and Standard-Vacuum have been repaired and generally restored to operating conditions. Shell's Pladjoe refinery and Standard-Vacuum's Soengei Gerong (Palembang) refinery were still being rehabilitated at the end of the year. Additional work has been carried out at these plants during the first half of 1948.

Djambi Crude Unavailable

Shell processed a daily average of 30,000 bbl. of crude oil at its Pladjoe refinery last year while Standard-Vacuum refined approximately 3,500 bbl. daily. Shell's oil fields at Talang Djimar and Limau became available to them during 1947. Standard-Vacuum's fields at Talang Akar-Pendopo, Djirak, and Benakat were also producing at the year's end. The Shell interests in south Sumatra were seriously handicapped by the unavailability of the Djambi production, which lies to the north about midway between Palembang and the fields of mid-Sumatra. Political boundaries accounted for this unavailability.

In mid-Sumatra, the Nederlandsche Pacific Petroleum Mij. (jointly owned by Standard Oil Co. of California and the Texas Co.) made a discovery before the war, a discovery with promising prospects. Standard-Vacuum had also developed two small producing fields. However, at the time of the Japanese occupation no outlet had been provided for this production. And to date the political situation has prohibited the resumption of operations on properties in mid-Sumatra by their previous owners.

Before the war Shell had sizeable production in North Sumatra and a modern refinery at Pangkalan Brandan. This refinery was reported to have been completely destroyed and at the end of last year the area was still in the hands of the Indonesian Republicans and not available to Shell.

In British Borneo the Seria and Miri fields were among the first of the Far Eastern oil areas placed back on production by their original owners. At the close of last year the new prolific Seria field was producing approximately 48,000 bbl. daily. The average daily production was around 36,084 bbl. These fields are owned and operated by Shell interests. Of the 36,084 daily average output, 35,591 bbl. came from Seria and 493 bbl. from the older, almost depleted, Miri field.

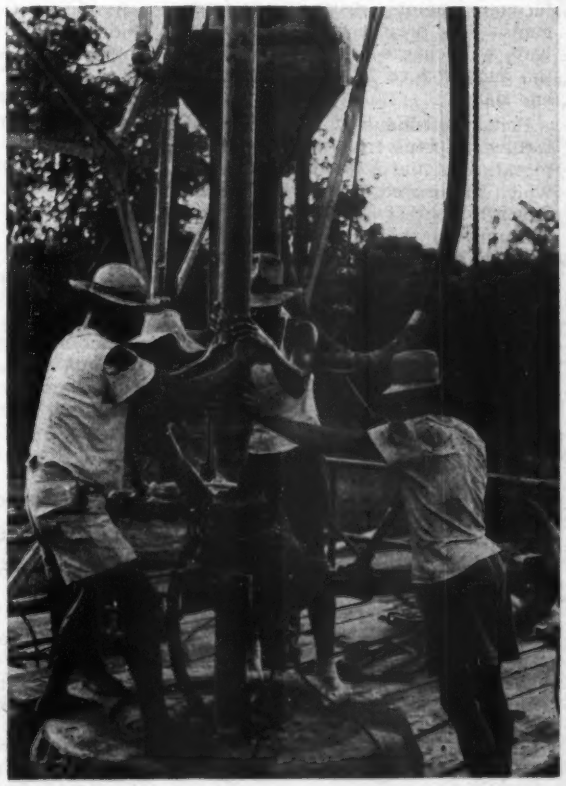
During 1947 a total of 83,572 ft. were drilled at Seria and 8,227 ft. at Miri. Twenty-one wells were completed at Seria and one at Miri. No gas was encountered or dry holes drilled in either field. At Seria there were 56 flowing wells and none on pump at the end of the year, while there were 56 wells on pump and 1 flowing well at Miri. At Seria an additional 84 wells were producing by gas lift. At close of the year there were 20 wells shut in at Seria and 19 shut in at Miri.

Cumulative production at Seria, from the date of discovery in 1929 to the end of last December, was 65,343,000 bbl. At Miri the cumulative production from 1911 to the end of last December was 69,759,000 bbl. Both fields produce from Tertiary sands.

To rehabilitate the petroleum industry at Balikpapan, in the south of Borneo, 50,000 tons of materials were imported last year. Water transportation between the various Shell settlements and the transport of locally available goods was carried out by about 60 ships. A total of 174 trucks were employed for overland transportation. Several branch and auxiliary industries were expanded and rebuilt, such as the oxygen plant, brick yard, electrical works, boiler houses and water supply. Work on the oil fields at Sambodja, Louise (Sanga Sanga), and Tarakan was largely directed toward the repair of wells which had been destroyed. At Louise and Tarakan 43 new wells were drilled.

Before the war Shell made a discovery in the South Borneo basin at Tankjoeng. Rehabilitation work and additional exploration activities were conducted there last year.

The Shell and Standard-Vacuum fields in East Java were not available to their original owners during the year, with the exception of a very small amount of production in and around the city of Soerabaja. These old and depleted fields were again in the hands of Shell and rehabilitation work was carried out in a minor way. The only production withdrawn last year was that used for fuel.



Indonesian drillers at work this spring on a well of Standard-Vacuum Oil Co. at Pendopo, Sumatra

International

WORLD-WIDE OIL DEVELOPMENTS

Refinery Expansion Slow In Europe, Austin Says

ENGLAND and Europe will depend on the Near and Middle East almost entirely for crude supplies when production and transport facilities there have been developed adequately to meet the demand, said H. R. Austin, president of M. W. Kellogg Co., engineers and fabricators of refining and other industrial equipment, after a month of studying Europe's industries at first hand.

American equipment fabricators can compete for Europe's needs for heavy machinery and equipment only in those categories where we are better equipped to manufacture than are the European makers, Austin believes. We can expect to supply specialties such as instruments, and items too large for European manufacturing facilities.

Indicative of British efforts is the contract for the design, engineering, and supervision by the Kellogg company of the large Imperial Chemical Industries' new plant at Wilton, England, to crack petroleum naphtha for the production of ethylene and propylene as intermediates for synthetic organic chemicals such as plastics, lacquers, paints, drugs, and detergents. This project, now well under way, will charge 7,400 bbl. of naphtha and produce 212,000 lb. of ethylene daily.

British oil-industry activities will receive impetus from the recent exploration of the war-created oil pool which eliminated brand competition. Several months will be required to consume all the petroleum products still on hand, made to the common pool specifications, and it will be well into 1949 before direct competition between brands will become active, Austin pointed out. The British motorist is limited to 90 miles per week of driving, which will prevent any sudden spurt in competitive activity.

Scarcity of petroleum products in England is no longer due to lack of tankers but to insufficient refining capacity, Austin said, and expansion is already under way based, for the time being, on processing designed to obtain the greatest volume of products with the least use of critical materials. Ultimately British refineries will utilize the more modern processes and provision for them is being made in all current plans, but their inclusion must await general expansion of British steel capacity and facilities for fabricating large vessels and heat-exchange units.

France's refining capacity for the next year is 200,000 bbl. per day and by 1952, France plans to have 345,000 bbl. per day refining capacity and to consume 216,000 tons of steel in building it, which steel must come from French facilities, he said. Belgium has plans to build 30,000 bbl. daily refining capacity which will go far toward supplying its increased needs, Austin observed.

New Chile Field Seen In Wildcat Now Testing

ALTHOUGH Chile's 1 San Sebastian has not yet been tested, the Corporacion de Fomento de la Produccion believes that it has discovered a new oil field on the Tierra del Fuego archipelago, 50 miles south of Spring Hill field.

This belief is based on a core analysis test, which showed saturation. Casing was set at approximately 7,200 ft. Drilling is being continued in order to gather more geological information about that area.

The character of the sand is said to be about the same as at Spring Hill, which is medium-size quartz grains. The age is Cretaceous or Jurassic. *(For details on the principal characteristics of the Spring Hill oil horizon, see The Oil and Gas Journal, April 5, 1947, page 42).*

If deeper drilling indicates that there is no more favorable structure, the casing will be gun-perforated at 7,200 ft. to make a production test.

Assuming that the San Sebastian wildcat is a commercial producer, Chile will have seven wells with a daily potential of from 400 to 500 bbl. each. Currently Williams Brothers Corp. is planning construction of a crude-oil pipe line which probably will be 8 in. in diameter and extend to Bahia Gente Grande, about 14 miles from Spring Hill. Fomento hopes that this line will be completed by the end of this year.

At Spring Hill, wells 14 and 15 are now being drilled. At Espora, 5 miles north of Spring Hill, Fomento is drilling another wildcat. The initial wildcat there was a dry hole but geological information warranted additional drilling, a Fomento spokesman explained.

Poe, Associates to Do Research in Venezuela

E. Holley Poe and Associates has been engaged to make studies and researches in connection with the possible utilization of natural gas produced with oil, according to a letter by the Minister of Fomento sent to all of the operating oil companies in Venezuela.

The Minister requested the various oil companies to designate a representative to act as a member of a special committee to be created by the ministry for these studies.

Creole's May Production Hits Another New High

VENEZUELAN crude-oil production of Creole Petroleum Corp. hit another all-time high for May with an average daily output of 644,133 bbl. This compares with the April production of 634,695 bbl. daily and the previous high of 636,063 bbl. daily.

Of the 644,133 bbl. daily total, 481,164 bbl. were from the Lake Maracaibo area; 158,198 bbl. from eastern Venezuela; and the remaining 4,771 bbl. from Cumarebo.

Creole brought in 18 development wells and three wildcats, all oil producers, during May. Two dry holes were completed in Temblador field and another two in the Jusepin area. Fields where oil producers were brought in, their average initial production, and average depth follow:

Development—Bolivar Coastal (B.C.F.) 11 wells, 479 bbl., 4,705 ft.; Quiriquire 6 wells, 579 bbl., 4,048 ft.; and Temblador 1 well, 146 bbl., 4,241 ft.

Wildcats—Quirquire 2 wells, 330 bbl., 4,121 ft.; Pilon 1 well, to be tested, 4,115 ft.

A total of 57,651 bbl. of crude oil were refined by Creole during May. This compares with 38,292 bbl. daily in April. Of the 57,651 figure, 37,179 bbl. were refined at Caripito and 20,472 bbl. at the La Salina plant.

Creole Closes Down Camp at Port Guiria

Operation of the camp of Creole Petroleum Co. at the Port of Guiria in the state of Sucre in Eastern Venezuela will be closed down, company officials announced, as the company's crude-oil trans-shipment terminal maintained at Guiria is no longer being used.

The terminal first began operations in 1935, and the total operating expense in connection with the camp and terminal until the present time has been approximately $4,500,000. Because of operating difficulties involved in the system of transportation at this point the terminal is no longer being used.

Poland Orders Tankers

Under the trade agreement recently signed by Great Britain and Poland, Poland has ordered two tankers, each of 10,000 dwt., to be built in British shipyards. The cost is estimated at £1,000,000, or $4,000,000. This trade agreement, aimed to ease the difficulties of supply and payment, was signed last March.

WASHINGTON WATCHING

BY BERTRAM F. LINZ

Truman's Oil Policy

WASHINGTON. — A recommendation by Rep. Dewey Short of Missouri, chairman of the House armed services oil subcommittee, that the President should direct the National Security Resources Board to establish a commission to report and recommend on a national oil policy, has been turned down flatly by the administration.

The suggestion for establishment of the commission, to be composed of representatives of the major and independent oil men, the public and interested government agencies, was carried in Short's report on the military oil situation, in which he called for quick, drastic, action to make the United States self-sufficient in oil before another war overtakes us. The commission, he said, should consider first the allocation of steel and rationing of oil and report thereon within 6 months.

To insure that this and other recommendations in the report reached those in authority, Short sent copies to the defense chiefs and President Truman. From the latter, he received a brief note of thanks and the comment that some of the subcommittee's suggestions were covered by the President's messages requesting authority to impose emergency allocation, price, and wage controls.

Short immediately wrote the President, suggesting that he take another look at the report, and he is reportedly due shortly to receive a more detailed response in which his suggestion for a commission to investigate the oil situation will be turned down cold.

The Missouri Congressman, who expects to become chairman of the full committee next session, will be told that the cure for the oil situation is not a commission but control of distribution, plus imports, plus a government program for synthetic fuels production, plus federal operation of the tidelands– that is, if all the suggestions submitted to the President are included.

Gas Wants a Spokesman

MEMBERS of the natural gas industry recently advanced a proposal which, in effect, would make the National Security Resources Board their claimant agency for needed materials and spokesman at the Capitol on legislation affecting the industry.

They proposed that the board set up an industry committee which would make studies of the material and other situations from the standpoint of national security, on the basis of which the board could take action necessary to insure an adequate gas supply in the event of emergency. In view of the generally known materials shortage and the opposition to the hobbling policies of the Federal Power Commission, it was a foregone conclusion what the industry's recommendations would be and board officials, who do not want to be put in the position of attempting to influence Congress or the executive agencies, were forced to decline.

At a recent meeting of the board with representatives of the gas industry, however, the latter were asked to assist on certain problems relating to supply and demand for natural gas and the industry's construction program and to make an economic study of gas in relation to coal and fuel oil from the standpoint of fuels most vitally needed for defense. This will give the industry an opportunity to present the same suggestions and arguments it would make if its own proposal had been accepted, but without committing the board in any way.

Shades of Benny Meyers

THE checkered story of Maj. Gen. Bennett E. Meyers, former second ranking procurement officer for the Air Corps whose testimony before the Senate war investigating committee last year made spicy front page reading and won him a sentence in prison for subornation of perjury, may include a chapter on oil, it was indicated last week before another Congressional committee.

A House executive expenditures subcommittee headed by Rep. George R. Bender of Ohio is investigating the alleged gouging of the Government by excessive wartime freight rates set by railroad men commissioned in the Army.

Meyers and oil were brought into the picture by a government transportation expert testifying before the subcommittee, who suggested that a study of the former general's activities not gone into by the Senate committee might prove fruitful.

"In this connection," said the expert, Thomas F. Proctor of Arlington, Va., "this committee could very well direct itself to an investigation into the so-called service contracts which General Meyers negotiated with the oil companies on aviation gasoline during the war. I can assure you that the revelations would be most interesting, and are pertinent to the current inquiry."

The activities to which Proctor referred occurred when Meyers was running the Air Forces Material Command at Patterson field.

The House investigation is concerned with charges that the Government may have overpaid the railroads as much as $300,000,000 during the war in freight rates. An FBI investigation, asked by the antitrust division of the Justice Deaprtment, was dropped, it was testified, pending a determination that the rates had been proven to be unreasonable.

More Tariff Cuts

ALTHOUGH facing the prospects that it will not survive to see the fruits of its handiwork, the Truman Administration is going ahead full-speed with its plan to bring the non-communist world into the general agreement on tariffs and trade negotiated at Geneva last year.

The 1947 agreement has now been signed by 22 of the 23 countries which participated in its development, the only stand-out being Chile, which has asked an additional 6 months in which to consider the matter.

With the 1 year extension of the Reciprocal Trade Agreements Act voted by Congress in the last days of the session, the Administration has additional time in which to work for broader participation in the agreement, and another meeting in Geneva has been scheduled for August 15.

That meeting will seek to bring under the agreement the "fringe" countries not included in the original negotiations, which is expected to necessitate discussions of tariffs on commodities not covered by the 1947 pact, which may be heralded by public hearings by the Tariff Commission which, under the trade agreement extension bill, supersedes the Committee for Reciprocity Information in hearing the views of American businessmen who may be affected by any changes in import duties.

International Altruism

ONE of the factors back of the determination of Congress to extend the Reciprocal Trade Agreements Act for only 1 year in the face of administration demands for a 3-year continuance was the skepticism which some members feel regarding the de-

sirability and effectiveness of the International Trade Organization whose charter was perfected last March by 54 nations meeting in Havana.

The charter will come before Congress next session for ratification, and there already are indications it will be the subject of a bitter fight. The extension of the agreements act for only 1 year was based in part on the expectation that if the ITO charter is O.K.'d, new legislation may be required to implement it.

While administration officials have hailed the charter as a great achievement and the anchor of a program which eventually will eliminate all artificial barriers to international trade, there are many who doubt that some of the other countries approached the problem as altruistically as did the United States.

In some Congressional circles there is a feeling that we moved too fast and attempted to cover too much territory, and nothing would have been lost if another year or two of study had been given the groundwork.

Louisana Gulf Leases Bring High Bid Offers

BATON ROUGE. — Oil companies last week offered the State of Louisiana $4,272,778.05 for leases on Gulf of Mexico submerged lands totaling 301,670 acres.

The high bids received by the State Mineral Board were indicative of the current surge in exploration and drilling in offshore Gulf areas. The sale was another of a series held by the board since the war and brought to about 15 per cent the portion of acreage within Louisiana's 27-nautical-mile belt now under lease.

A record high bonus of $515,000 was paid by Superior Oil Co. of California for mineral rights on a 5,000-acre tract about 25 miles from shore in the West Cameron area. Acreage in all offshore areas except East Cameron and South Pass was offered in the sale on request of bidding companies.

At the same time, the Mineral Board leased inland water bottoms totaling 74,700 acres. Total bonuses were $2,257,231.78. Humble Oil & Refining Co. paid $492,500 for a 3,500-acre tract in St. Mary and Assumption parishes, mainly in Lake Palourde and Bayou Boeuf. Humble's bid also included 7/48 royalty to the state.

By areas, acreage leased and bonus obtained were: Bay Marchand, 3,187 acres, $25,850; Main Pass, 12,500 acres, $46,224.50; Breton Sound, 25,400 acres, $113,208; Chandeleur Sound, 16,265 acres, $110,122; South Pelto, 20,750 acres, $342,000; Ship Shoal, 40,170 acres, $501,117.45; West Delta, 13,000 acres, $45,300; Eugene Island, 45,000 acres, $513,576; South Timbalier, 29,200 acres, $903,350; West Cameron, 62,770 acres, $1,377,163.10; and Vermilion, 3,139 acres, $17,435.

Within the 27-nautical-mile zone (31.4 statute miles) off Louisiana's coast is a total of 24,700 sq. miles, or 15,808,000 acres. Amount now under lease is 2,418,670 acres. Total bonuses paid amount to $22,464,290. About 22 operations are now being conducted in open Gulf of Mexico waters, either wells drilling, platforms under construction, or definite locations.

Merger of Allied With Ashland Is Scheduled

PLANS for the merger of Allied Oil Co., Cleveland, Ohio, into Ashland Oil & Refining Co., Ashland, Ky., have been approved by the directors of both concerns. A special meeting of Ashland stockholders July 30 will vote on the plan and on the issuance of additional stock to finance the transaction.

Allied and its subsidiaries, Central Pipe Line Co. and Cleveland Tankers, Inc., will be operated as separately managed and wholly owned subsidiaries of Ashland, and their organizations and personnel will be kept intact. W. W. Vandeveer and F. R. Newman, organizers and principal stockholders of Allied, will no longer be active in direct management but will be substantial stockholders in the enlarged Ashland organization.

Allied's refinery at Canton, Ohio, is processing 10,000 bbl. of crude daily, and through subsidiaries the company is active in purchasing and production and controls crude supplies substantially in excess of the capacity of its refinery. Ashland, on the other hand, is in need of additional crude supplies for its refinery at Ashland, Ky., which has a capacity of 35,000 bbl. per day. Both companies have been active in marketing in Ohio, Kentucky, and adjacent states, and their properties are expected to complement each other.

Ashland has extensive barge facilities on the Ohio River, while Allied has the largest independent fleet of tankers on the Great Lakes. The two companies have worked together in the past. Both are participants in the American Independent Oil Co. which has just obtained a concession in the Kuwait neutral zone, and the jointly owned Allied-Ashland Tankers operates two ocean-going tankers.

Combined sales of the two companies for the 6 months ended March 31, 1948, were approximately $49,000,000. The merger is to be effected by the issuance of 200,000 shares of new $1.20 cumulative convertible preferred stock and 357,500 shares of common stock of Ashland for all the outstanding stock of Allied.

Suit Names Warren for Texas L. P. G. Contracts

AUSTIN.—Charges of violating the Texas antitrust laws through its butane contracts were filed in state District Court here July 7 against Warren Petroleum Co.

Price Daniel, Texas attorney general, alleged Warren entered into agreements giving it the option of exclusive selling to Ellis Transport Corp., a butane distributor, and to Tex-O-Kan Flour Mills Co., a butane consumer. Another charge is that Warren allegedly made an agreement with Inland Refining Co., a butane producer, to the effect that Inland would not alter its manufacturing process so as to affect substantially the amount of butane produced.

These agreements, Daniel charged, consitute restraints of trade in violation of the Texas antitrust laws. The charges grew out of an investigation commenced last winter during a time when butane and L.P.G. were in short supply in certain areas in Texas. This investigation was conducted by Pat T. Peyton, Jr., an assistant attorney general, and other personnel in Daniel's office.

Daniel said his office has examined records of Warren, including many sales and purchase contracts. The three on which the suit is based are the only ones which he said he considers to violate the Texas statutes. The petition asks the statutory penalties and an injunction against further observance of the agreements.

Nation's Largest Unitization Plan Scheduled in Texas

HOUSTON.—A unitization plan estimated to provide recovery of an additional 78,000,000 bbl. of liquid hydrocarbons will be placed in operation August 1 in Old Ocean field in Brazoria and Matagorda counties, Texas.

M. R. Lents, vice president and general manager of J. S. Abercrombie Co., which will operate the unit, said 419 royalty owners and 10 lease operators holding more than 97 per cent of the mineral interests, had agreed to the unitization.

The proposal has been under study about 2 years. Lents said Old Ocean will become the largest voluntarily unitized oil and gas field in the nation.

Besides the 78,000,000 bbl. estimated additional recovery, about 200,000 bbl. annually greater production of plant products will be realized from unit operation. Abercrombie's present gasoline plant in the field has a capacity of about 350,000,000 cu. ft. daily. The field is one of the largest gas-condensate reservoirs in the Gulf Coast.

Production Men of Gulf Oil Corp. Meet for Technical Symposium

HOUSTON.—More than 70 officials and supervisors of Gulf Oil Corp., principally from the production organization in Texas and Louisiana, met here last week for a 4-day interchange of ideas on a variety of technical subjects.

Some 15 papers were presented the first 2 days of the meeting July 7 and 8. The final 2 days were devoted to field trips to Pierce Junction and Thompson fields, the Katy cycling plant, the Texas Gulf Sulphur Co. plant and sulfur field at New Gulf, and a tour by air to Harvey, La., and Mississippi Delta operations.

Besides supervisory production personnel of the Houston division, the Fort Worth, Shreveport, and Houston districts, those in attendance at the conference included Dr. Paul D. Foote, executive vice president, Gulf Research & Development Co.; A. J. Teplitz, chemical engineer of Gulf Research & Development, and several officials of the Houston pipe-line and sales divisions.

Chairman of the meeting was E. P. Hubbard, Houston district production superintendent. The program was worked out under the chairmanship of J. M. Cooper, assistant superintendent of production of the Houston district. Hubbard presented an illustrated discussion of operations in Kuwait in the Middle East where he was stationed last year. E. C. Freeman, area production superintendent at Thompsons field, was host at a barbecue July 9.

Other speakers and their subjects on the program were: "Review of Gulf Coast Production Operations," W. B. Hopkins, division petroleum engineer; "Piercement - Type Dome from Geological Viewpoint," George Lamb, assistant division chief geophysicist; "Some Unusual Activities of the Research and Development Department," Dr. Foote; "The Procurement, Handling, and Disposition of Equipment, Materials, and Supplies," E. N. Foster, division purchasing agent; "Review of Cement and Perforating Practices," Teplitz; "Comparison of Gas Lift and Rod Pumping in the Same Field," E. I. Petree, chief petroleum engineer, Houston; "Pipe-Line Operations," W. L. Shannon, assistant general superintendent, pipeline division; "General Sales Activities," O. H. Carlisle, division manager, sales; "Analysis of Lifting Costs," with several speakers; "Report of Equipment Tests," M. I. Taylor, petroleum engineer, Fort Worth; "Marine Drilling Structures," M. B. Willey; "New Developments in Drilling Fluid," J. P. Weichert, district petroleum engineer, Houston; "Completion Methods in Partially Depleted Sands," J. W. Quinn, district petroleum engineer, Houston; and "Plastics for Combatting Sour-Gas and Oil Corrosion of Pipe and Tanks," W. F. Rogers, chemical engineer, Houston division.

Crude Prices Raised In Five Texas Fields

HOUSTON.—Southern Minerals Corp., Corpus Christi, last week made upward adjustments in the posted price of crude oil for five fields in the Southwest Texas area.

Three fields were raised 5 cents a barrel, another 10 cents, while the gravity scale was extended to 40° in a fifth. The company in an explanation of the action said the minor adjustments, effective July 1, were made to bring the posted prices in line with the posted prices in other nearby fields for oil of comparable quality.

Petronila field crude was raised 5 cents to a top of $2.80 for 40° and above. This, the company said, brings it in line with Luby and Shield. The same raise was given to East Riverside and deep Odem crude, bringing this price in line with Agua Dulce and Richard King.

Two Others Raise

The gravity scale for Saxet crude was extended from 35° to 40° with a price for 40° and above of $2.90. Fall City crude was increased to a top of $2.75 for 40° and above, bringing it in line with Pettus.

Earlier, Talco Refining Co. made a 2-cent advance for Quitman crude in East Texas, effective July 1. Pan American Production Co. followed with similar action, making the top price for 40° and above $2.60. Pan American also extended to 40° and above its gravity scale for Merigale-Paul and Manziel fields of East Texas. Previously the posting ended at $2.60 for 39° and above.

Among the Gulf officials at the supervisors' conference last week in Houston: J. A. Branch, chief clerk, Houston division; E. D. Brockett, Jr., assistant superintendent of production, Fort Worth; W. P. Hopkins, division petroleum engineer; Dr. Paul D. Foote, executive vice president, Gulf Research & Development Co.; J. H. Russell, vice president, Gulf Oil Corp. and Gulf Refining Co., Houston; J. C. Phillips, assistant superintendent of production, Shreveport; E. P. Hubbard, superintendent of production, Houston; J. M. Cooper, assistant superintendent of production, Houston; M. I. Taylor, petroleum engineer, Fort Worth; E. L. Petree, chief petroleum engineer, Houston; E. N. Foster, division purchasing agent; A. J. Teplitz, chemical engineer, Gulf Research & Development Co.; J. W. Quinn, petroleum engineer, Houston; and Walter F. Rogers, chemical engineer, Houston division

New Well-Logging Device Being Tried by Humble Engineers

Charles J. Deegan

A NEW method of logging formations in a well is being developed by Humble Oil & Refining Co.'s geophysical research department, and although there are still some "bugs" to be whipped, results to date are very encouraging.

The principle on which the new method operates is very similar to that of the reflection seismograph, namely the difference in physical properties of the various types of formations as indicated by their response to sound waves. Experiments to date show that when functioning properly, the new instrument not only differentiates sharply between shale, sand, and limestone, but also picks up noticeable variations within a shale body.

One of the most encouraging features in the experimental work to date is that formation boundary changes show up within even a narrower range than general preliminary theoretical estimates had indicated. It had been anticipated that the effect of a boundary change would be spread over a range of 4 ft. on an average frequency-distribution curve. In preliminary tests, sharp changes in property have been noted in shales within a much narrower range than 4 ft.

The instrument is cylindrical in shape with an over-all length of about 15 ft., with an inner cylinder of nickel, about 8 ft. in length. It is run in a mud-filled hole in about the same fashion as an electric logging device. As long as the consistency of the mud is reasonably uniform, it makes no difference whether it is saline, or even whether it is an oil base mud.

Idea Came from War

As a source of sound waves, and a method of measuring reflected energy, advantage is taken of the properties of nickel. It has long been known that when nickel is subjected to a magnetic field, the molecules of the nickel shrink and give off energy in the form of sound. This is a two-way reaction, as when a nickel tube is subjected to sound waves from an external source a magnetic field inside the tube is affected.

This principle was widely used in antisubmarine warfare. A nickel tube under water was subjected to a magnetic field and sent out sound waves through the sea water. If these were reflected by a submarine, the effect of the reflected sound waves registered on a magnetic field inside the nickel tube, and this was translated into audible sounds for the observer.

The heart of the Humble instrument is the 8-ft. nickel tube, which contains two coils, insulated magnetically from each other, inside the upper part a magnetic field is excited by an electric current from the surface. This causes the nickel tube to shrink and send out sound waves through the mud fluid in the well bore. These waves are reflected in varying proportion (according to the type of formation) by the walls of the bore. The reflected energy affects the nickel tube in these same varying proportions, and this in turn causes variations in the magnetic field inside the lower part of the tube. These magnetic variations are translated into current and registered on a log strip in the conventional manner.

Through sound-insulating devices on the ends of the tube, the sound-wave energy pattern emitted has a shape somewhat similar to the magnetic field around a bar magnet, as outlined by iron filings in the classic experiment familiar to every high-school physics class.

There are high hopes that when the remaining "bugs" are whipped and the instrument is available for commercial use, many new "markers" will be available to the geologist for correlation purposes. Denser or more mineralized streaks in thick shale bodies, if persistent over any distance, may become noticeable on the new log. Not enough data are available to determine how useful it might be to the sedimentologist in tracing shifting facies changes from shale to sand and vice versa; nor to what extent silting of a clean sand (thereby affecting porosity and permeability) can be detected. Also, theoretically at least, there should be some marked differences in the records of various portions of a thick limestone or dolomite, depending upon the variation in density through the vertical section.

Since no official announcement is likely to be made until all the "bugs" are whipped, Humble's policy on general use of the instrument can only be a matter of conjecture. Other company geologists however point out that the maximum usefulness of the new instrument cannot be realized by anyone, including Humble, unless a large number of wells are logged. It seems likely, therefore, that whenever the instrument reaches a commercially bug-free working stage, some kind of licensing arrangement will be set up to make it available to the entire industry.

East Texas Pressure Up

AUSTIN.—An increase of 3.79 psi. in bottom-hole pressure in East Texas field in June to 1,006.25 psi. July 1 has been reported by the Texas Railroad Commission.

Oil Production in the field during the month was at an average of 314,746 bbl. daily. Salt water reinjection averaged 507,706 bbl. daily. This was 89.38 per cent of all salt water produced with the oil, according to Col. E. O. Thompson, commission chairman.

Next Week's Issue

New Plant Report: Celanese Corp.'s new Bishop, Texas petrochemical operation is covered by the Journal's refining editor.

Diamond Bits: Their construction, mud circulation factors, coring techniques, reverse circulation coring procedures, are discussed by an engineer prominent in these developments.

Wesson Field (South Arkansas) Unitization Project: This model oil and gas conservation project is detailed by one of the Journal's district engineering editors.

Pipe Insulation: Engineering practices involved in preventing heat losses at Tide Water Associated's Bayonne, N. J., refinery.

Maximum Flow Efficiency: How it is maintained in natural-gas pipeline systems through efficient cleaning procedures—described by the transmission superintendent for Panhandle Eastern Pipe Line Co.

Active Fields: The Jordan Ellenburger (Ector County, Texas) is spotlighted as to drilling conditions—with ownership map and electric log.

The Airborne Magnetometer: Operational procedures and dollars and cents practical applications are discussed by the Journal's Charles J. Deegan, following actual flight-and-data trip with operating crews.

PERSONALS

Sohio Names Buchanan Land, Exploration Head

GEORGE S. BUCHANAN has been made vice president of Sohio Petroleum Co. in charge of land and exploration in a reorganization of company activities which places Sohio's principal land and exploration offices in Houston.

Buchanan has been Gulf Coast division manager since he joined Sohio in 1945. In his new position, he will direct all Sohio land and exploration work through division organizations in Houston, Oklahoma City, and Evansville, Ind. Sohio several months ago set up main operating offices in Oklahoma City with R. W. French, also elected a vice president, in charge of this phase of activities.

Buchanan, a 46-year-old native of Sterling, Colo., who was raised in Spokane, Wash., received his A.B. in 1922 and his M.S. in 1924 from the University of Michigan, majoring in geology. Following graduation he went with Carter Oil Co. in Tulsa as subsurface geologist. Four years later, he joined the old Tulsa Oil Co., a Standard Oil Co. of Kansas subsidiary, in Tulsa as geologist.

In 1933, Buchanan came to Houston as chief geologist for Barnsdall Oil Co. The following year he left Barnsdall and became associated with Adams-Louisiana Co. in Houston. This independent producing company, of which Buchanan was president, later became Adams Oil & Gas Co. and was absorbed by Sohio in 1942. In 1936 Buchanan organized Yegua Corp., serving as its president until he joined Sohio in 1945.

Present Sohio offices are in the Neils Esperson Building in Houston. In August the Gulf Coast division and Houston district organizations will take all this space, and the land and exploration headquarters headed by Buchanan will be established in new offices at 1973 West Gray Street in Houston.

M. G. Langhorne has been made crude-oil purchasing officer at Dallas, Tex., for Phillips Petroleum Co. His territory will include East Texas, Arkansas, and North Louisiana.

Paul L. Harwood, in the purchasing department, New York, for The Texas Co., since 1945 and prior to that assistant supervisor of refining production, has been appointed to the newly created post of assistant manager of the crude-oil purchases and sales division for the company, with headquarters in New York. **Doyle Grogan,** Tulsa, previously with The Texas Pipe Line Co., has been assigned the new post of representative of the division in Kansas and later will establish headquarters at Wichita, Kans.

E. H. Reichl, who joined Pittsburgh Consolidation Coal Co. early this year as chief process engineer of the development department, has been promoted to manager of the company's research department. A graduate of the Polytechnical Institute of Vienna in chemical engineering, Reichl's experience includes positions with Babcock & Wilcox Co., Winkler-Koch Engineering Co., Stanolind Oil & Gas Co., and Standard Oil Co. of California. For the past 3 years he has conducted investigations abroad of Germany's synthetic oil research and operations.

B. E. Youkers, motor check engineer for Tide Water Associated Oil Co., San Francisco, from 1945 to 1947, and later regional manager for Clayton Manufacturing Co. of El Monte, Calif., has joined the staff of the Pennsylvania Grade Crude Oil Association as a special field service representative assigned to the midwestern area with headquarters in Chicago.

A. M. Rentz, operating engineer at the Stanolind Oil & Gas Co.'s Salt Creek, Wyo., gasoline plant, and **D. B. Warner,** junior mechanical engineer there, have been transferred to the manufacturing department of the company's general office at Tulsa.

L. R. Dickinson, chief engineer, Socony-Vacuum Oil Co., Inc., White Eagle pipe-line division, Wichita, Kans., has been transferred to Eastern pipe line department, New York, to become chief engineer there.

Lev. A. Mekler, petroleum engineer and technologist with offices in Chicago, has been appointed consultant for the Stanford Research Institute. Except for the period from 1942-43, while he was on loan to the United States Government in the Petroleum Administration for Lend Lease to Russia, Mekler has spent most of the last 25 years as combustion engineer, metallurgist and development engineer for Universal Oil Products Co.

As a result of the recent acquisition of Wasatch oil producing properties by Phillips Petroleum Co., Phillips has established a Northwest Region, Salt Lake City, Utah. Previously operations were conducted through the company's district office at Rangely, Colo. Personnel changes include: **Claude E. Peavy,** formerly of the Wasatch organization, becomes regional superintendent; **Hugh Riecken,** assistant district superintendent at Rangely, becomes regional engineer; **A. F. Semmelroth,** of the Wasatch organization, engineer; and **Cecil Kirkland,** division chief clerk, Denver, becomes regional office manager.

Personnel named to the company's new Rocky Mountain division include: **C. H. Griffin,** formerly of the Wasatch organization, to division superintendent; **A. J. Willis, Jr.,** formerly Mississippi district engineer, to division engineer; **P. C. Woods,** of Wasatch, to engineer in the new division; and **K. A. Miller,** district chief clerk at Guthrie, Okla., to division chief clerk.

In the Rangely district, **F. W. Hilliard** will continue as district superintendent, and **J. A. Ziser,** engineer, Rocky Mountain division, Denver, becomes engineer for Rangely district.

In the Wyoming district at Casper, Wyo., present lease foreman **L. W. Barbee** will supervise Rex Lake, Lander, and Mush Creek fields.

W. M. Schul, Oklahoma City district superintendent, has been named division superintendent for the company's Glacier division, Great Falls, Mont. **E. N. Washburn,** engineering section, Bartlesville, has been named division engineer. Development foreman is **J. D. Jones,** from the Wasatch organization, and **J. R. Miller,** district chief clerk at Guymon, Okla., has been named division chief clerk.

In the Cut Bank district, Cut Bank, Mont., **H. A. Svoboda,** of the Wasatch organization, has been named district

PERSONALS

superintendent; **E. E. Clark,** formerly of North Burbank district, as engineer; and **W. R. Beland,** of Wasatch, district chief clerk. Lease foreman for for fields follow: **A. T. Wynn,** of the Wasatch organization, Soap Creek field; **R. T. Loudermilk,** of Wasatch, Cut Bank field; and **R. J. Fargher,** of Wasatch, Pondera field.

W. S. Derrick, assistant chief production engineer, Bartlesville, engineering section, has been named to head the Canadian operations, Edmonton, Alta.

V. P. Ethridge, division superintendent, Gulf Coast division, has been named division superintendent for the newly formed Off-Shore division with headquarters at Houston, and **F. F. Lovering,** division superintendent, Rocky Mountain division, has been named division superintendent, Gulf Coast division, Houston.

Howard D. Watson of Regina has been transferred to Lloydminster as resident petroleum engineer for the Saskatchewan government to enforce conservation and drilling and production regulations. He is a graduate of the University of Saskatchewan and a member of the resources department staff.

Alvin R. Summers, formerly north and west Oklahoma production division superintendent at Oklahoma City for Sunray Oil Corp., has been named Oklahoma division superintendent and also will be in charge of Sunray's south and central Oklahoma production department operations in the greater Seminole area. He will continue to make his headquarters in Oklahoma City. **C. C. Shreve,** formerly the company's Oklahoma division superintendent for greater Seminole area, with headquarters at Allen, Okla., has been transferred to Great Bend, Kans., where he will be division superintendent for Kansas to succeed **F. D. Sabourin,** who recently resigned. **V. L. Smith,** division engineer at Allen, will take on additional duties as production superintendent in the greater Seminole area. **Lee Pruitt,** Sunray's former district engineer of northern and western Oklahoma division, Oklahoma City, has been transferred to Odessa, Tex., as district engineer, north and west Texas division. He succeeds **A. W. Paine,** who has resigned. **Fred McDaniel,** division engineer, Great Bend, Kans., has been named assistant division superintendent for the Kansas division and **Dudley Strother,** formerly engineer at Oklahoma City, has been transferred to Great Bend as engineer. Two engineers recently have joined Sunray. They are **W. L. Gaither,** district engineer, Seminole, Okla., and **Glenn Marrs,** engineer, Oklahoma City.

L. L. DAVIS

J. H. OLEHY

L. L. Davis, supervisor of technical services of Continental Oil Co.'s manufacturing department and associated with the company for more than 21 years, has been appointed manager of the newly created development and research department. Before joining Continental in 1927 as technician and assistant superintendent of the Ponca City, Okla., refinery, Davis had experience in refinery operations with the Cities Service and Sinclair organizations. In 1928 he was named acting general superintendent for Continental and a year later was promoted to supervisor of the process division and since that time has been supervisor of technical services of the entire manufacturing department.

J. H. Olehy, chief process engineer for Continental, has been named to succeed Davis as manager of the company's development and research department. A graduate of the University of Colorado in electrical engineering, he joined Continental in 1927 as assistant refinery engineer at Ponca City. He became process engineer in 1937 and later was advanced to chief process engineer. Promotions of other key personnel in the manufacturing department include:

J. H. Smith, technologist, chief process engineer, succeeding Olehy. A graduate of the University of Purdue, Smith served as process engineer for another large oil company before joining Continental as technologist in 1943.

B. H. Lincoln, chief chemist, to patent adviser of the development and research department. He has been associated with Continental since 1926 when he joined the company as a chemist. A graduate of the University of Colorado in chemical engineering, he served for a time in the employment of the State of Colorado. In 1930 he was named assistant to the manufacturing manager and in 1933 to chief chemist.

A. M. Hovlid, assistant to the manager, manufacturing department, to the newly created position of personnel supervisor, manufacturing department, in addition to his present duties. A graduate of the University of Colorado in chemical engineering. Hovlid joined Continental in 1923. In 1933 he was named assistant to the research chemist and then assistant to the refinery manager the same year.

C. A. Nielson, research chemist in charge of the process laboratory, to chief chemist to succeed Lincoln. A graduate of the University of Colorado, Nielson joined Continental in 1937 as a senior research chemist and in 1946 he was placed in charge of the process laboratory.

Horace E. Luntz, technologist, to superintendent of the process laboratory. He joined Continental in 1936 as refinery laboratory technician at Ponca City. A graduate in chemical engineering from the Georgia School of Technology and the University of Michigan, he served a period of 7 years as resident engineer for an oil company in Texas prior to joining Continental.

William T. Hack, New York chemical engineer and for the past 2 years a special assistant to the vice president of Ethyl Corp., New York, has been appointed director of the newly created division of chemicals, rubber, and allied products of the National Security Resources Board.

M. A. Brewster, treasurer for Pennzoil Co., Oil City, Pa., has been named secretary of the company to succeed **R. A. Browne,** secretary and wholesale sales manager, who has retired after 39 years of service. **A. M. Clinger,** purchasing agent, will take over the duties of wholesale manager. **F. W. Alcorn,** general auditor, will become treasurer and controller. **M. L. Meddock,** credit manager, succeeds Alcorn, and **George Redding** becomes general auditor.

A. A. Hammick, chief engineer for Iraq Petroleum Co., Ltd., with headquarters in London, recently arrived in New York where he has been conferring with **H. S. Austin,** consulting engineer for the Iraq projects.

J. S. Morse, operations manager of Shell Oil Co., Inc.'s, Cleveland division, has been transferred to the company's New York head office as plant manager. Morse, a graduate of Massachusetts Institute of Technology, started with the company as a mechanic in 1932. He became operations manager in the Boston division in 1938, and in 1941 was transferred to Detroit in the same capacity. After wartime Navy service, he became Cleveland operations manager in 1946. **C. P. Woodward,** acting manager of the plant department, New York, has been named to succeed Morse. Woodward has served as operations manager in Detroit and also in Chicago. **John M. McGinnis,** operations supervisor at the Cleveland plant, has been named automotive

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JUL 3 1948

The OIL AND GAS JOURNAL

"WHEN YOU USE HUGHES PRODUCTS YOU GET PERFORMANCE WITH A BIG PLUS"
"Recently one of the Hughes men worked out a 'planned bit program,' on three wells, for me . . spotting bits in certain formations. I was amazed at the result. In each instance there was a marked decrease in lapsed drilling days and bits per well. That's what I call service beyond the call of duty and it surely fits right in with that old Hughes slogan, an 'Engineered Solution' for every drilling problem."
HUGHES TOOL COMPANY
HOUSTON, TEXAS
Standard of the Industry

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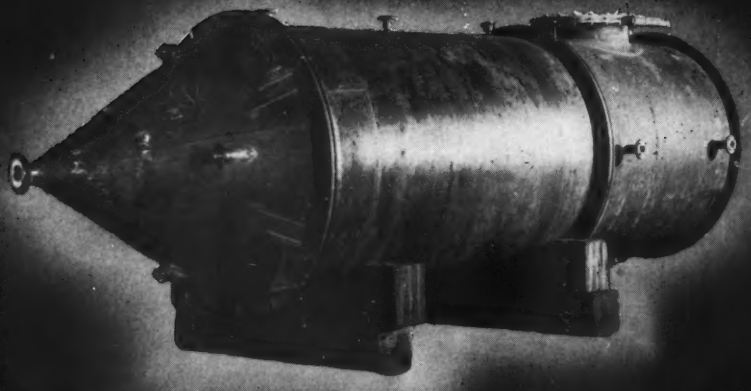
Wyatt's

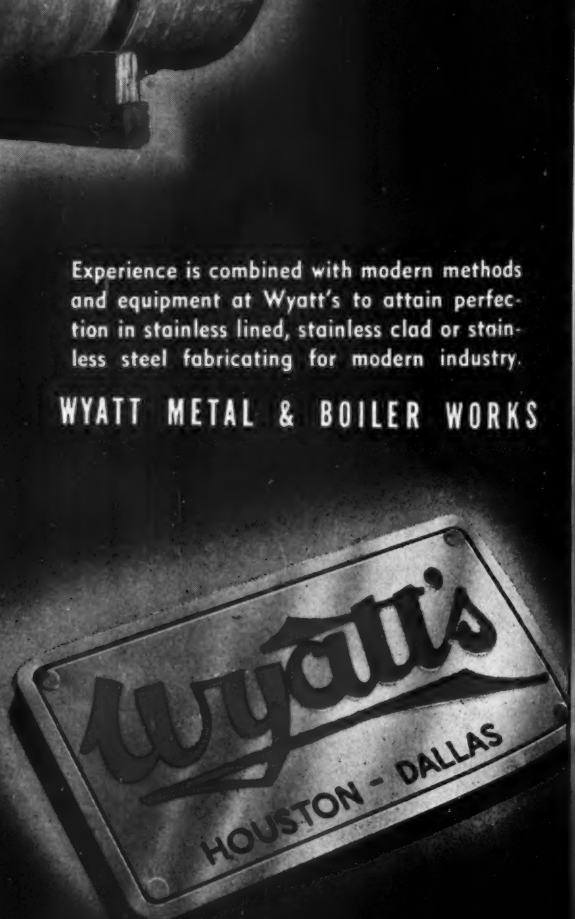
SUPERIOR FABRICATION FOR THE CHEMICAL INDUSTRY



A large nickel-clad evaporator, typical of the many special products fabricated by Wyatt for the rapidly expanding Chemical Process Industry.

Experience is combined with modern methods and equipment at Wyatt's to attain perfection in stainless lined, stainless clad or stainless steel fabricating for modern industry.

WYATT METAL & BOILER WORKS



engineer in the head office for Shell. He joined the company in 1929 as a clerk in St. Louis.

Henry J. Weding, geologist at Jackson, Miss., has joined Kingwood Oil Co. at Mount Vernon, Ill., as basin scout.

Burt Ellison, for the past 14 years on the geological staff of Standard Oil Co. of California at Taft, Calif., has resigned to open a consulting office in Bakersfield.

C. R. Wallace, supervisor of field operations, geophysical division, producing department, The Texas Co., at Houston, has been promoted to assistant to the division manager.

H. A. Larson, formerly assistant purchasing stores representative for Shell Oil Co., Inc.'s Tulsa area, has been made purchasing stores representative for Shell's Houston area. He succeeds the late Elmo Ehinger. Larson, a native of Kansas City, Mo., who received a bachelor of science degree from Tulsa University in 1935, has been associated with Shell since 1937, serving in various purchasing and stores capacities for the company in Kansas, Texas, and Oklahoma.

W. L. Kygar, formerly assistant manager of the production and drilling department for Continental Oil Co., has been promoted to the newly created position of assistant manager of the company's motor transportation division. **Col. T. D. Harris** is manager of the division. Kygar, who joined Continental in 1926 after graduating from the University of Oklahoma, has held various positions in the company's pipeline accounting division as well as the production and drilling department.

Evan Just, editor of Engineering and Mining Journal, New York, and at one time petroleum production engineer for Carter Oil Co., has been appointed director of the strategic materials division of the Economic Cooperation Commission, which has been set up to facilitate the production and procurement of materials needed by the United States. Just has had wide experience in geological work involving petroleum and minerals in this country, Russia and Brazil.

R. W. Miller, formerly superintendent of transportation, Canadian River Gas Co., Amarillo, Tex., has been made general superintendent in charge of all field operations for the company. Miller has been with Canadian River for the past 20 years.

Gene Goff, independent oil operator of Fayetteville, Ark., has moved his headquarters to Midland, Tex., where he plans to become active in the Permian basin.

Ben E. Richards, formerly with Carter Oil Co., has resigned to become a consulting geologist at Mattoon, Ill.

SHIFTS—

G. W. Ledingham, geologist, Western Gulf Oil Co., Bakersfield to Los Angeles, Calif.; **W. B. Brinnon,** foreman, Magnolia Petroleum Co., Lovington to Roswell, N. M.; **F. H. Bateman,** superintendent, Wheless & Nelms, Inc., Troup, Tex., to Oil City, La.; **R. J. Hughes, Jr.,** geologist, Exploration Surveys, Inc., Dallas to Corsicana, Tex.; **Carl J. Christensen,** engineer, Stanolind Oil & Gas Co., Fort Worth, Tex., to Shreveport, La.; **James L. Devault,** superintendent, Rowan Drilling Co., Kermit to Odessa, Tex.

J. E. Hendricks, engineer, Rock Hill Oil Co., Victoria, Tex., to Des Moines, Iowa; **William G. Allen,** engineer, Keystone Exploration Co., Wichita Falls to Seymour, Tex.; **Ben H. Freeman,** engineer, Stanolind Oil & Gas Co., Lafayette to Lake Charles, La.; **Buford Long,** engineer, Rust Engineering Co., New Orleans, La., to Houston, Tex.; **R. M. Adams,** engineer, Gulf Oil Corp., Philadelphia to Ridley Park, Pa.; **Jack Harden,** superintendent, Cox & Hamon, Healdton, Okla., to Chanute, Kans.

H. C. Hall, foreman, Stanolind Oil & Gas Co., Oklahoma City to Chickasha, Okla.; **James T. Dorland,** engineer, Gulf Oil Corp., Seminole, Okla., to Hobbs, N. M.; **D. E. Logan,** superintendent, Phillips Petroleum Co., Borger to Dumas, Tex.; **H. B. McClendon,** engineer, Honolulu Oil Corp., Levelland to Midland, Tex.; **F. W. Briggs,** foreman, Continental Oil Co., Bossier City, La., to Berthoud, Colo.

Judson Minard, geologist, Stanolind Oil & Gas Co., Maplewood to Lake Charles, La.; **Jules A. Houssiere,** engineer, California Co., New Orleans, La., to Brookhaven, Miss.; **J. F. McDonald,** engineer, Phillips Petroleum Co., Bartlesville to Tulsa; **C. U. Allen,** engineer, Rock Island Refining Co., Duncan, Okla., to Gary, Ind.; **V. H. Hilford,** engineer, Sinclair Refining Co., Tulsa, to Independence, Kans.; **Duncan Thomson, Jr.,** engineer, Commercial Solvent Corp., Monroe, La., to Terre Haute, Ind.

William W. Sloan, Jr., geologist, Carter Oil Co., Shreveport, La., to Craig, Colo.; **F. G. Prutzman,** engineer, Sun Oil Co., Jackson, Miss., to Dallas, Tex.; **Walter Smisloff,** chemist, The Texas Co., Joliet to Lockport, Ill.; **W. K. Rickel,** engineer, Amerada Petroleum Co., Lewiston, Mont., to Watford City, N. D.; **James N. Wilson,** geologist, Seismograph Service Corp., Altus to Madill, Okla.; **Sam Uzzell,** superintendent, Magnolia Petroleum Co., Chickasha, Okla., to Morgan City, La.; **Rex V. Wilson,** engineer, Continental Oil Co., Ponca City, Okla., to Billings, Mont.

DEATHS

John Thomas Graham, 56, well-known South Texas independent oil operator, died July 8 in Corpus Christi. He was president of Tom Graham Oil Co., Laguana Ranch Co., and Jim Wells Gas Co., and was active in the Independent Petroleum Association of America.

Paul Huey Zook, 53, vice president of Sloan & Zook Oil Co., died July 8 in Kane, Pa. He sold his interest in the company recently when it was acquired by Deep Rock Oil Corp.

Joseph W. Whitehill, 88, former driller, contractor, and producer in western Pennsylvania fields, died July 5 in Oil City, Pa.

Carey Walker McKinley, 53, crude-oil accountant for The Texas Co. who had been associated with the company 23 years, died July 5 in Houston.

Lionel Buckley, marine agent for Sun Oil Co. in Beaumont, Tex., for 17 years, died July 7 in Leeds, England, where he was visiting.

Gordon A. Walpole, 33, chemical engineer for Esso Standard Oil Co., died July 8 in Linden, N. J.

Phillips S. Pugh, district sales and service man for Barrett division, Allied Chemical & Dye Corp., died July 10 in Tulsa.

E. M. Box, 61, auditor for Tide Water Associated Oil Co., died July 7 in Tulsa.

Alfred J. Wells, 60, retired Carter Oil Co. tax attorney, died July 12 in Tulsa.

Irve Grove, 63, driller in the Pennsylvania area, died July 5 in Franklin, Pa.

Tide Water Associated's MECHANIZATION P

by R. Beattie*

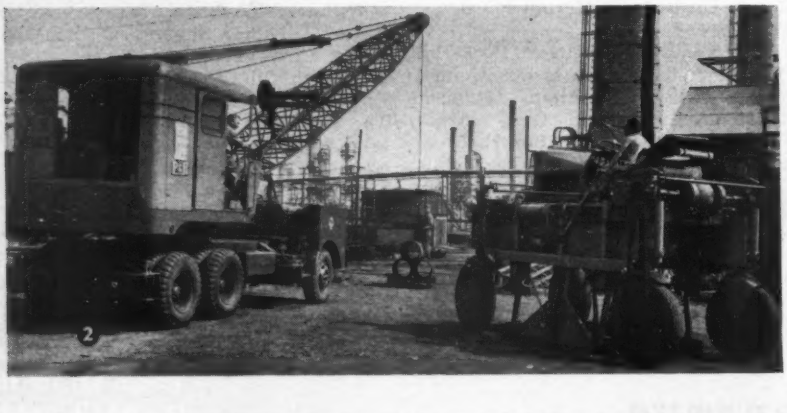
THIRTY-ODD years ago Tide Water Associated Oil Co. decided to install a 10-in. oil-transfer line in the Bayonne refinery connecting the still area with a tank farm. Laborers started ditching with pick and shovel and struggled through marsh bog and old foundations of brick and timber. Work in most places was below the water table. Once the ditch was opened men and horse teams hauled pipe from storage and rolled each length into the excavation. Pipe crews sweated and swore, "stabbing" each joint, then made up the thread joint, to the tattoo of hammer on steel. When the line was laid and tested, men and horses backfilled at the expense of more muscle and body.

*Tide Water Associated Oil Co.

Tide Water Associated recently decided to replace and enlarge this line. First, a mobile truck crane moved in and opened the trench with a modern bucket, biting three-fourths of a yard at a time. The equipment is rugged and powerful enough to dig almost anything other than concrete.

With ditching under way, the huge 10-ton lift truck ran up to the stock pile of 20 ft. lengths of plain-end pipe and, with no help other than its operator, picked up five joints and dropped them at the welding shop. Before leaving, the operator speared a joint with one fork and dropped it into the welding blocks. Duplicating the action he set a second

(Continued on page 100)



1—This Traxcavator, powered with a diesel engine, is a valuable piece of equipment for loading debris. By mounting scraper plate on front end, it can be used for heavy bulldozer work, back filling, snow plow or similar applications. 2—Two mechanical units team up on a combined effort for fast "big inch" pipe handling (note the 3 joints on pallette). The Pawling & Harnischfeger mobile crane does the lifting; the Ross carrier does the transportation. 3—Front view of Tide Water's 10-ton Ross carrier, handling an exchanger bundle on a pallette. 4—Tide Water here use their Ross "Fork" in moving a pile of construction lumber from storage yard to construction site

PROGRAM

Pays Dividends

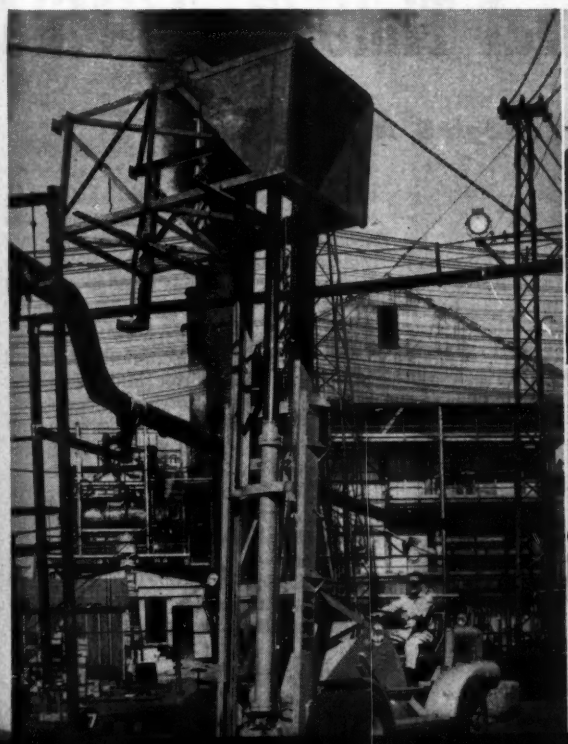
5—Here the carrier handles a pallette loaded with 20 drums, 50-gal. size. Pallette is 12 ft. long. Longer ones can be made with corresponding increase in capacity

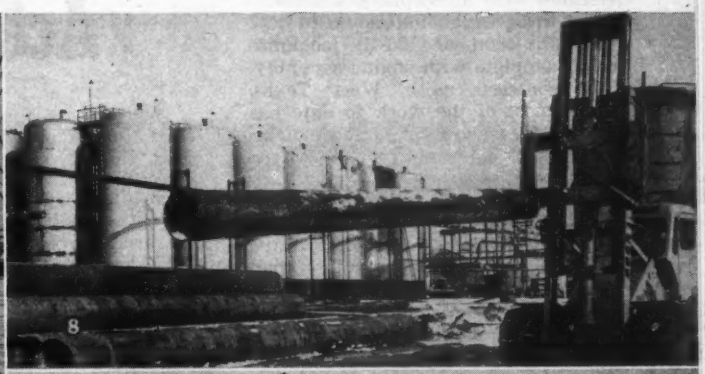
6—The carrier is versatile. Its job in this instance is handling a 40-ft. length of 22-in. pipe

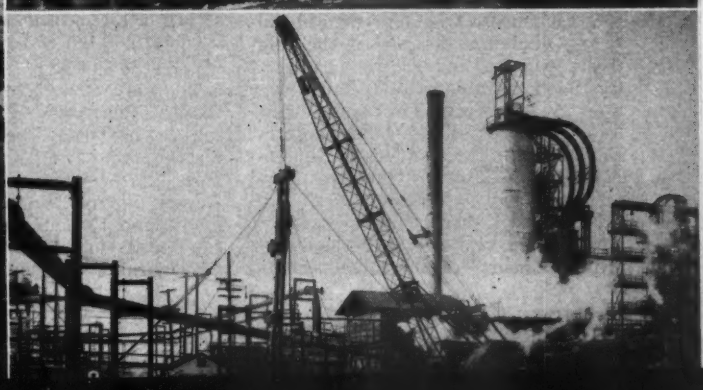
7—Transportation of hopper unit from fabrication point to installation site in refinery

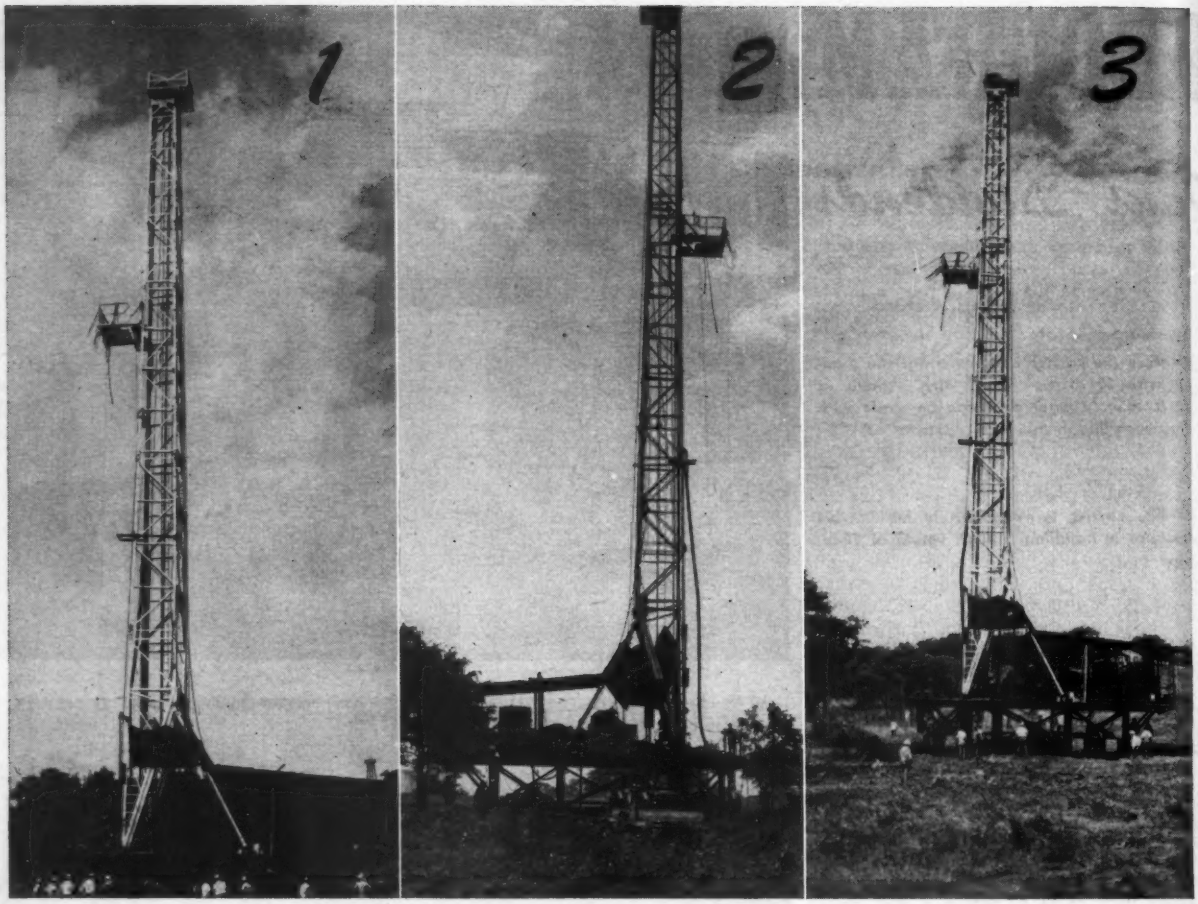
8—Application of "fork lift" truck to pipe handling

9—On this plant construction work, Tide Water is using a Pawling & Harnischfeger 15-ton truck crane to handle a pile driver rig, with a steam hammer head. This rig with the crane makes it possible to move onto a job and drive the piles in less time than it takes to move in and set up the regular pile driving equipment









Track-Wheel Units Quickly Actual Time on ¾-Mile

by Leigh S. McCaslin, Jr.

A METHOD of moving rigs cross-country without tearing down, that originated in West Texas, has now invaded Oklahoma. Bill Hall Construction Co. of Duncan recently completed its third move in Sholem-Alechem field of Stephens County.

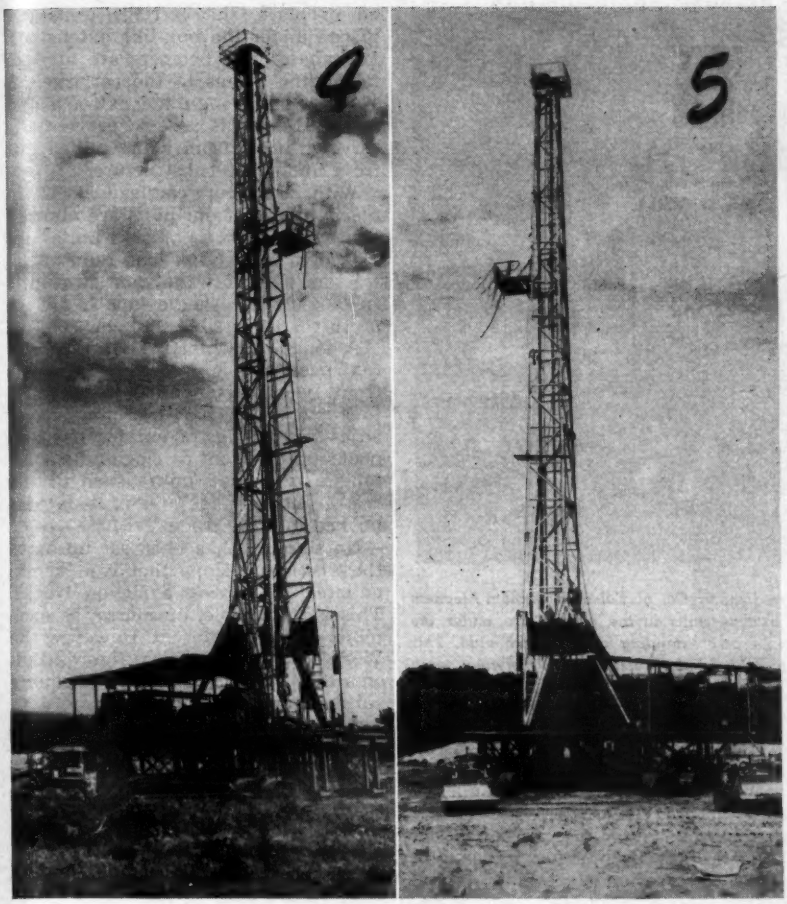
The three Oklahoma moves to date have all been of 136-ft. jackknife masts complete with engine assembly. This contrasts with West Texas, where most of the work to date has been in the moving of large derricks. The derrick and unitized engine assembly are separated and moved in two loads. R. C. Rumbaugh & Sons, rig contractors of Odessa, have been moving derricks in that area for some time and have completed more than 100 successful moves without mishap. Moves have been made as far as 10 miles and of derricks in the 200-ft.-plus class.

Some concern was expressed initially in Oklahoma because of the relatively wooded and rolling terrain of the Sooner state. In addition, power lines are more prevalent, and section-line roads crisscross the country. However, the three moves in Sholem-Alechem field were a good test, and all were conducted successfully.

Four track-wheel units, each of which supports a swivel carriage unit, are the "heart" of the novel system. Two medium crawler-type tractors furnish the motive power. No guy wires are necessary for the movement despite the fact the masts look top-heavy. Flotation of the track-laying units is good enough to negotiate sand in which an oil-field truck will get stuck. Each set of tracks has 16 sq. ft. of ground-contact area. Speeds as high as 4 miles an hour are not uncommon.

The move shown in the pictures on these pages was for Creekmore Drilling Co. of Tulsa. The job involved a distance of ¾ mile on the Hansen lease of Amerada Petroleum Corp. Actual moving time involved was 2 hours, and 10 hours was required for the entire job from start to finish. Considerable time was necessary to turn the rig around 90° before moving off the old location. This was necessary, as a 4-ft. grade prevented movement in the desired direction. A fairly sharp incline was negotiated during the operation.

All that is necessary to get ready for a move is to disconnect the mud pumps and the water and gas lines. As can be seen in the pictures, all types of miscellaneous equipment and tools were piled on the rig floor for the movement. In fact, the rig-moving contractors stated they would "move the pumps if they were loaded on the floor." Total load for this Creekmore operation was variously estimated between 350,000 and 400,000 lb. Speed of movement was as high as 3 to 3½ miles per hour.



The 136-ft. jackknife derrick, plus engine assembly and substructure, shown in these pictures, is being moved ¾ mile, without tearing down. Four track-wheel units which are placed at the corners of the substructure are the "heart" of this unique moving system. In picture 1, an interested group of spectators gathers around as the rig is jacked up. The next shot, No. 2, shows the track-wheel units in place and the move under way. Two medium tractors furnish the motive power. Picture 3 is a back view of the rig under way as it negotiates a gentle slope. The tracks of two of the moving units can be seen in the picture. The front view during movement, is pictured in 4. In addition to pulling the rig, the bulldozers are used to clear away underbrush or trees that might hinder the move. The underside of the substructure is only 10 in. off the ground during movement. The last picture, No. 5, shows the two tractors jockeying the rig into position in the new location

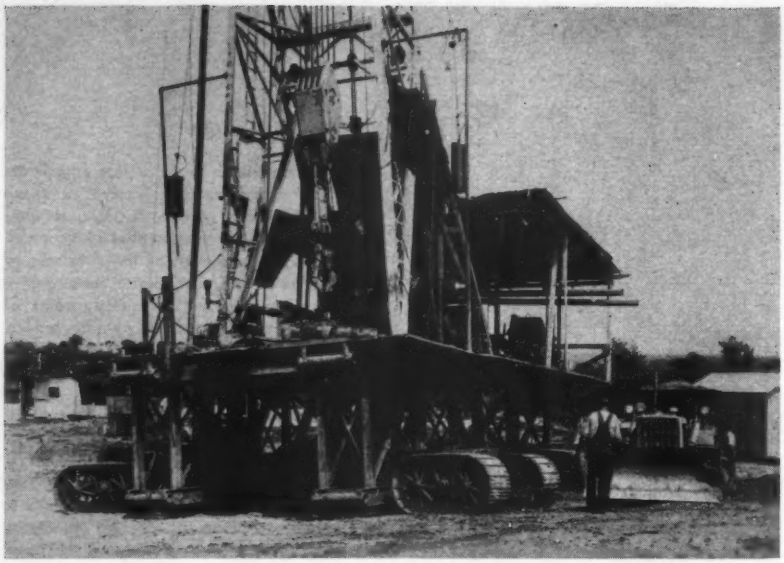
Move Complete Drilling Rig.. Location Shift Is 2 Hours

Below: This group were interested spectators at a recent move for Creekmore Drilling Co. in Sholem-Alechem field. Shown are: George Hicks, farm boss, Amerada Petroleum Corp.; C. E. (Baldy) Becker, assistant drilling superintendent, Creekmore; Bill Hall, Bill Hall Construction Co.; Harry Hite, production superintendent, Amerada; A. A. (Butch) Colbert, drilling superintendent, Creekmore; Roy T. Eppler, chief clerk, Velma district, Amerada; Manuel Bonham, field superintendent, Bill Hall Construction Co.; and C. E. (Cash) Johnson, toolpusher, Creekmore

First Job for D & D

First job taken by the Bill Hall company in Oklahoma was for the D & D Drilling Co. of Dallas to a Magnolia Petroleum Co. location. Distance traversed was one diagonal location, and actual moving time was only 40 minutes. Total time was a little over 5 hours, including 3 hours to jack the rig up and 1½ hours to set it down on the new location. The relatively long time required to get the rig jacked up is due to the fact that rigs of this type have to be moved sideways 12 ft. before jacking up. This movement is necessary so that the rig will miss the christmas tree.

On the second job undertaken, for Taber & Coleman Drilling Co. of Oklahoma City, a move of ½ mile was entailed. Actual moving time to this Stanolind Oil & Gas Co. location



This side view is of a rig moved for Creekmore Drilling Co. of Tulsa in Sholem-Alechem field of Stephens County, Oklahoma. The two tracked units in the picture are under the H-beam which runs clear through the substructure and extending out on each side. This beam provides a means for the substructure to rest on the carriage unit between each of the pairs of tracks

totaled 1½ hours. In addition to the wooded, hilly terrain, the movers had to cross a road and a pipe line during the operation.

First Designed Before War

The idea of using tracked units to move rigs without dismantling was conceived before the recent war. However, materials shortages prevented any fabrication until about a year ago. Originator of the idea was Gene Rumbaugh, of R. C. Rumbaugh & Sons. The track units are manufactured by Athey Products Corp., Chicago, and the swivel carriage unit which is mounted on the tracks is made by Texas Flange Co., of Odessa. This concern also makes the tongue assembly and spacer which will be described later. Oklahoma distributor for the entire unit is Southwest Machinery Co. of Oklahoma City.

The swivel carriage unit can be described as a cradle on which the rig corners rest. This cradle is mounted between a pair of track-wheel units. As the name implies, the swivel carriage unit allows the load to change direction if this is desired. If not, a pin holds the unit in place.

Oklahoma Moving Practices

Moving procedure and practices used by the Bill Hall company is quite similar to that used in West Texas. However, several differences exist. The first step, as previously mentioned, is to disconnect the mud pumps and water and gas lines. The next step is to jack the rig up, using tractor winch lines, so that two H-beams can be bolted to the bottom of the substructure. These 26-in. by 12-in. H-beams (salvaged walking beams) run completely through the substructure and extend out a few feet on each side. The extension of the H-beams has been made into a box shape by welding steel plate to the beam. This box construction is designed to keep the beam from rocking after it is placed in the swivel carriage unit. H-beams are not used in moving the large derricks in West Texas, as the swivel carriage unit can be placed under the corner sills.

After the H-beams have been bolted in place, the carriage units are placed under the box-like extensions. Log chains and boomers are used to fasten the beams to the carriage. A 1½-in. pin through the extreme end of the H-beam is used to prevent the carriage units from being pulled out from under the substructure.

With the four carriage units in place, the two front units are allowed to swivel and the back units are locked in place. The load follows the tractors with only the front two units turning. A right-angle turn in 160 ft. of travel is possible.

A tongue assembly and a telescoping spacer bar is used to connect the front two carriage units to the first towing tractor. The telescoping spacer adjusts to fit rigs of various size and hooks up the front carriage units. The tongue is hooked up to each of the two front carriage units. It is also hooked into the tractor.

No standard has been set up as to the maximum slope that can be negotiated in moving a rig on tracks. This is impossible, of course, as each job is entirely different. However, the West Texas movers have figured that on a 136-ft. derrick with a 30-ft. square substructure one corner can be 4 ft. lower than the other three without any danger of overturning.

The labor necessary for the job consists of the drilling crew plus two "cat" drivers and one man working for the rig moving contractor.

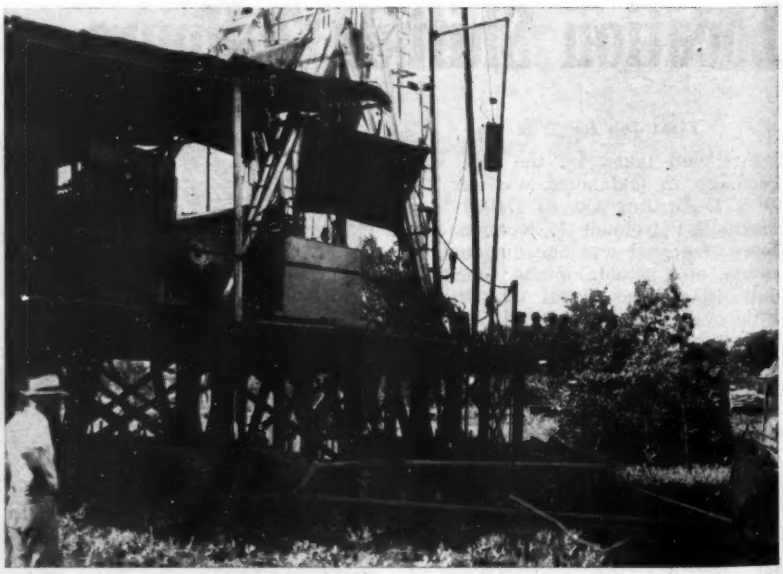
References

For other articles on this subject see:

"Permian Basin Rigs Moved on Tracked Units," by George Weber, The Oil and Gas Journal, October 11, 1947, p. 152.

"Rolling Heavy Rigs on Wheels," by George Weber, The Oil and Gas Journal, August 2, 1947, p. 58.

Photo and description of special rig moving in California, The Oil and Gas Journal, September 6, 1947, p. 43.



A tongue assembly is used to connect the front two tracked units to the first towing tractor. A telescoping spacer bar, adjustable for various sized rigs, connects the two tracked units to each other

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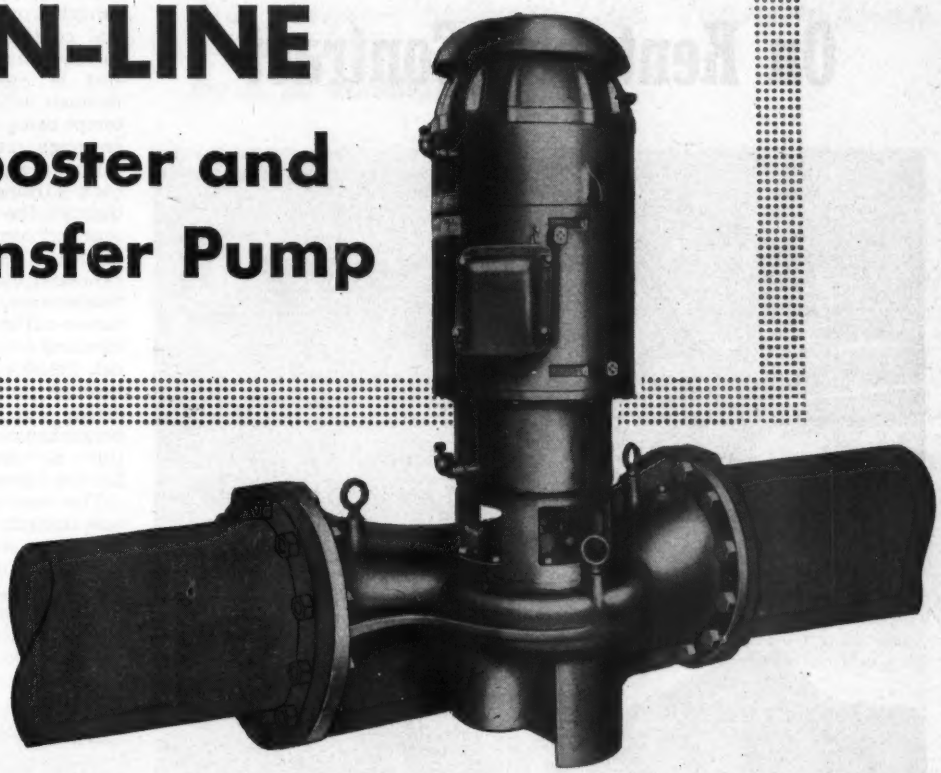
Booster and Transfer Pump



For accelerating the flow of liquids in existing pipe lines, tank car loading and unloading, circulation of hot or cold liquids and general transfer service. It has also been used successfully to boost the pressure in the suction lines of pumping units where severe suction conditions exist.

SPECIFIC ADVANTAGES

Suction and discharge nozzles are of the same size and are on the same centerlines. No foundation is required —supporting pedestal is integral with case. The entire unit including motor is fully weatherproof, requiring no protection. Steam turbine drive can also be furnished.

There is only one stuffing box, which is extra deep, and subject to suction pressure only.

No bearings in pump — No coupling required.

Renewable case wearing rings and impeller wearing rings provided.

Shaft handwheel provides a means of testing the freeness of rotor and also acts as a deflector.

Available for capacities ranging from 400 to 1400 gallons per minute and pressures up to 160 feet. Development of larger units for capacities to 4000 G.P.M. now under way.

When used for the acceleration of flow, complete units can be installed —or *several pump cases only* can be installed and left in the various lines. Then the rotating assembly with motor can be shifted from one casing to another when your line layout makes shifting feasible. The friction drop through the casing is no greater than through an open globe valve.

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UNITED STATES STEEL

New Rock-Drill Application Speeds Pipe-Line Construction On Kentucky Contract

A NEW rock-drill application has been made on a pipe-line construction contract held by Anderson Brothers Corp. of Houston, Tex. Their contract includes 80 miles of pipe line starting at Mt. Sterling, Ky., most of which involves rock drilling work. The pipe-line ditch averages 42 in. wide and approximately 6 ft. deep. Rock varies from 1 to 2 ft. to the full depth of the ditch, and the character ranges from rather soft shaly material containing numerous mud slips to hard limestone. Route of the pipe line is essentially a straight line through hilly country, with no attempt being made to avoid either rock or rough ground.

The accepted method of pipe-line rock drilling in the past has been through the use of portable compressors and conventional hand-held sinker drills. This method is necessarily slow and expensive and, in this particular case, was complicated by the coarse-cutting rock. A difficult hole-cleaning condition therefore was present, besides the hardships of drilling through mud slips with hand-held drills. The necessity for speed and inexpensive drilling led to consideration by Anderson Brothers of a Le Roi-Cleveland DR30 Wagon Drill.

The standard wagon drill, however, was inapplicable due to the width of the ditch and the 3-wheel construction of the drill rig, which precluded any possibility of straddling the ditch. Swiveling the wheels for line drilling also could not work due to rough going and, too, there would then be no provision for drilling across the full width of the ditch.

Details of Equipment Arrangement

After study of the problem and available equipment, the contractor and Le Roi-Cleveland engineers arrived at the following solution. Two standard air feed booms and drills were removed from wagon drills and yoked together back to back to form a rigid assembly with a lifting eye at the top (the Cleveland wagon drill air feed assembly is the only one made that can be used in this manner). As on any pipe-line job, there were a number of "boom cats" available. In this instance these units were large crawler-type tractors equipped with a side boom and normally used for the actual pipe laying in the ditch. One of these boom cats was utilized to lift and carry the double wagon

(Continued on page 103)

***Top:** The pipe-line ditch, averaging 42 in. wide and 6 ft. deep, is essentially a straight line through hilly country. **Center:** Shown here are two of the drill assemblies each slung by its tractor boom, from a single cable and free to turn in any direction. Towed behind the tractors are the 500-cu.-ft.-per-minute compressors. **Bottom:** Drill assembly is spaced to provide correct pattern for best fragmentation. Under favorable conditions one driller operates both drills*

Application of

CENTRIFUGAL COMPRESSORS

To High-Pressure Gas Transmission

by B. D. Goodrich*

CENTRIFUGAL compressors are being used to move large volumes of gas under high pressures over long distances for the first time by Texas Eastern Transmission Corp. This gas is being transported through the famous Big Inch and Little Big Inch oil lines which this company purchased from the Government in 1947.

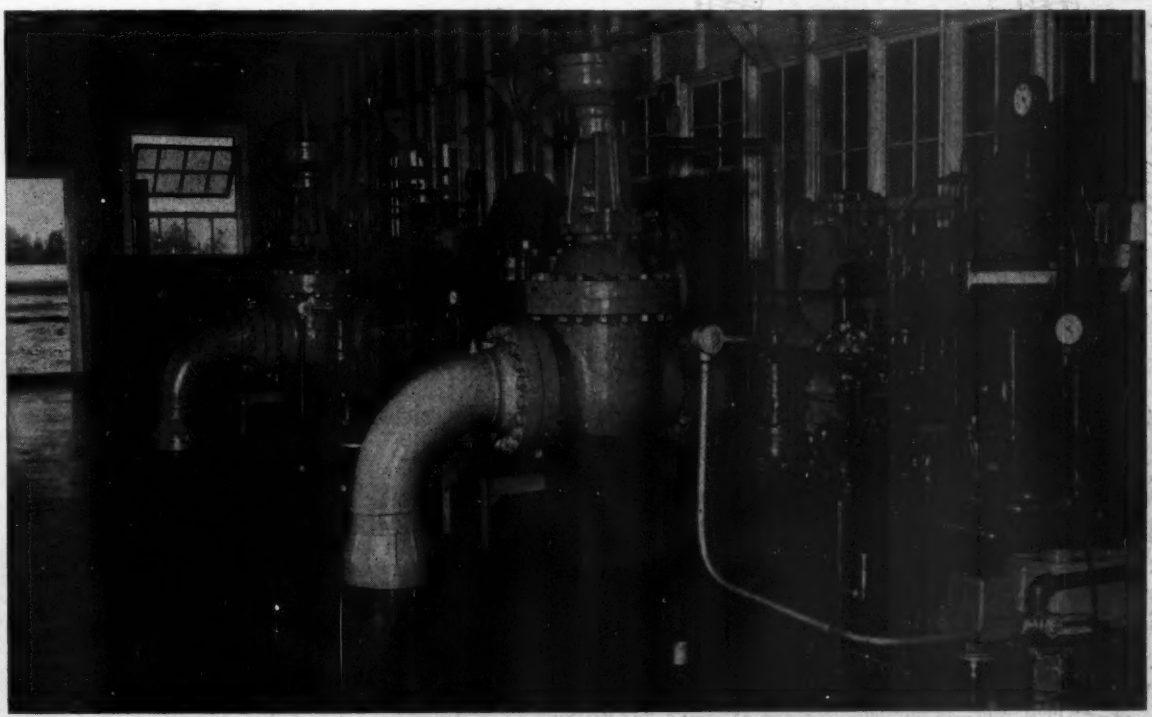
The experience with these compressors at pressures of 500 to 800 psi. has developed some very interesting facts about their application for this service. In surveying these data, it should, at all times, be kept in mind that this application is very unique. Our problem was not to start at the beginning to design a complete gas-transmission system, but rather to take pipe lines, pump stations, and other facilities which had been constructed to carry oil, and to convert them for use in the transmission of gas in the most efficient and economical way possible.

*Chief engineer, Texas Eastern Transmission Corp., Shreveport, La. Paper presented at spring meeting, Natural Gas Department, American Gas Association, Houston, Tex.

The centrifugal compressor was introduced into this country about 40 years ago, prior to which time all air and gas compression was accomplished with some form of displacement-type compressor driven by electric motors, steam engines, or gas engines. New applications of the centrifugal compressor were hard to obtain due to the natural prejudice against any change, but slowly this machine has been adapted from one application to another and from one process to another until today its usefulness encompasses practically the entire field of compression for air and gases.

Prior to the time that Texas Eastern Transmission Corp. made the decision to use these machines, only one other application had been made in this type of service. According to the records, this installation had been in the nature of an experimental unit and was never put into regular service, although the information obtained from the tests indicated that the compressor had met the designed conditions satisfactorily. Therefore, the machines which Texas Eastern now has in service can be considered to be the first centrifugal compressors to be used for the high-pressure transmission of gas.

Nearly every application of a new machine or a new idea or a new process requires a special set of circumstances to foster its use. In the spring of 1947 there was only one manufacturer who would discuss the immediate manufacture and delivery of centrifugal compressors for our service. Less than 1 year later there are



This photo shows the installation of centrifugal compressors at Station 15 of the Texas Eastern Transmission Corp. Located at Batesville, Ind., it is one of the former pumping stations on the "Inch" lines

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at least three and possibly more manufacturers who are in a position to quote early delivery of this equipment.

It was in exploring the possible utilization of the existing "inch" lines' pump stations that we began consideration of the centrifugal compressor. In reply to our inquiries of the engine manufacturers regarding the delivery of reciprocating equipment for use along this line came a proposal to furnish a centrifugal compressor using an electric drive. This had previously been discussed among our engineers and management and we were therefore very receptive to the possibility because of the opportunity such a machine presented to better utilize the facilities that were being purchased.

Our investigations into the practicability of the use of the centrifugal compressor on these pipe lines developed:

1. Centrifugal compressors had not been used for pressure above 500 psig.
2. They had not been used for long gas transmission.
3. There was some question as to the ability to obtain a satisfactory seal for this service and these pressures.
4. That considerable progress had been made in their design during the war, both in the techniques of the manufacture and the materials that go into their construction.
5. First cost of the compressor and their motors was in line with other compression equipment.
6. Maintenance and operating costs, other than fuel, were estimated to be considerably less than for gas engines.
7. The centrifugal compressor is essentially a high-capacity machine.

None of the known limitations which we were able to develop appeared incapable of solution, and most of the information only served to further strengthen our conviction that the centrifugal machine definitely had a place on this pipe line.

Our economic studies had further developed that by using the centrifugal compressor we could naturally deliver more gas to the markets and that the price we could afford to pay for the electric power was in the range of that which the War Emergency Pipelines had paid during the operation of the line for oil service.

After the decision to use these machines was made, other interesting developments came about to the extent that they could be so designed that they would be interchangeable with the oil pumps. We could just remove an oil pump and install the gas compressor with no piping changes involved at all. We are able to use practically all of the facilities which were installed at each station for oil service and in practically the same manner. The electrical systems installed at all of the stations were naturally one of the big factors in the decision to use the centrifugal compressor with electrical drive. Without these facilities the economic application might not have been possible.

View of seal oil pumps used with the centrifugal compressor units located in the former "Big Inch" (24-in.) crude oil pump station at Little Rock, Ark.

Installations as Made by TETC

The centrifugal compressor is unbelievably simple in appearance and size and in its internal construction. As designed for Texas Eastern with a daily capacity of 225,000 M.c.f., the compressors weigh only 6,000 to 7,000 lb. and are of physical size of 5 ft. wide and 5 ft. high, with a depth of 5 ft. including the length of the shaft. The unit consists, in general, of a short, heavy shaft to which are attached impellers, or wheels. The only wearing parts are the shaft journal bearings, the thrust bearing, and some designs of the shaft sealing unit.

By its simplicity, the centrifugal compressor can be expected to maintain a high level of efficiency over a very long life. There is nothing in the equipment which produces the compression that can deteriorate or become less efficient over the years. The maintenance or overhauling of these machines can be done very quickly and easily. No special tools are required. A complete overhaul—that is, dismantling the machine completely and replacing with all new wearing parts—can be done by two or three men in much less than an 8-hour shift.

The physical size of the machines indicate that the foundation requirements would be relatively small. It also follows that the floor space or building area needed would be reduced and that the weight of the building itself would be lessened due to the fact that the cranes which are usually supported by the building would be smaller in size to handle the lighter loads of these units.

Unit Design to 340 M.M.c.f. per Day

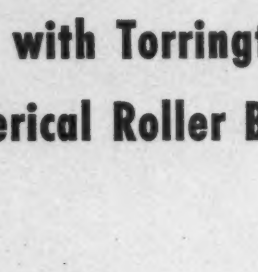
Some of the machines which we are having designed for us will handle 225,000 M.c.f., and others are being designed to handle 340,000 M.c.f., yet the over-all physical size of these machines is practically the same. The horsepower requirements are different but one of the important things to mention at this time is that the same compressor can be used for a wide range of horsepower. Since the first cost is very much the same on the compressor for any horsepower, it follows that the cost per horsepower would be materially effected as greater power is added to the same machine.

For instance, our original machines were designed for use with a 1,250-hp. motor, although the shaft and bearings were designed to take a 2,000-hp. driver. We are now contemplating the replacement of some of

For detailed map of Texas Eastern Transmission Corp.'s main line system (from its East Texas and Houston area purchase connections to final terminal sales points in the Philadelphia and New York areas) see pages 60-61 of the Journal issue of January 22, 1948. This map and other allied material on T.E.T.C. operations are given in the article of that date entitled "Texas Eastern Operates First High-Pressure Gas Transmission Centrifugal Compressors," by Paul Reed, the Journal's pipeline editor.

Trailerig Built for Long Service Life with Torrington Spherical Roller Bearings

Cardwell Manufacturing Company, Inc. secures long, trouble-free service life through the use of Torrington Spherical Roller Bearings on the main drum of the transportable Trailerig.



... high capacity and precision construction of these heavy-duty anti-friction bearings assure trouble-free operation with minimum maintenance attention.

CAPABLE OF DRILLING to 5000 feet with 4½-inch drill pipe, the transportable Cardwell Trailerig main drum is equipped for rugged service and efficient operation with Torrington Spherical Roller Bearings.

These bearings must carry the line pull, which runs as high as 30,000 pounds, and support the weight of the drum and line. The self-aligning feature of Spherical Roller Bearings prevents the development of excessive stresses under shaft deflection or misalignment imposed by these stresses. The bearings also maintain the close clearances necessary to protect the oil seals and assure efficient lubrication.

Spherical Roller Bearings provide many other features that can extend the service life and improve the performance of drilling rigs, slush pumps, unit pumpers, transmissions, draw works, rotary table drives and other oil field equipment. Torrington's engineers have had years of experience in the design, construction and application of anti-friction bearings. Let them assist you with your friction problems. Call or write the nearest Torrington office.

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the original motors with 2,000-hp. motors to accommodate proposed volume increases. No change at all is required on the case or the internal construction of the compressor. Of course, if the operating conditions had been materially changed, some alteration of the impeller would have been required.

The shaft seal is the heart of the compressor and the secret to its success. At the present time our machines are being designed with three different shaft sealing units. Each is very different from the other, but all are expected to be equally satisfactory in operation.

The centrifugal compressor is a large-volume machine, and it has its greatest economic significance on high capacities. Rotating equipment lends itself readily to automatic operation, which in turn results in low maintenance and operating costs. Only a small number of units is required at each station to handle the full capacity of the pipe line since all of the gas is handled through each unit.

Perhaps you are wondering by this time why the centrifugal compressor has been so long in being accepted for this type of service. The two reasons which retarded its application were, in order of their significance: (1) The economics of the prime mover. (2) The shaft sealing unit. As previously mentioned, the sealing problem has very definitely been overcome and therefore the prime mover remains the one big obstacle to its universal application.

The centrifugal compressor is essentially a high-speed and a high-volume machine, and it has a wide range of capacity variation. The compressors will produce approximately the same pressure rise over a wide range in capacity even down to as much as 50 per cent below design conditions.

With variable speed, the compressor has a wide range of flexibility in relation to compression ratio, capacity, and intake pressure. This compressor can handle a stream of varying specific gravity with no outside regulation required. The stream does not have to be absolutely clean and dry. It can have moisture and impurities in it. Small particles of dust or scale will not affect its operation and the abrasion or corrosion will probably not be of any consequence.

The gas is delivered in a steady stream with no pulsations, which is important to good pipe-line flow and should also be appreciated by those interested in measurement. The measuring equipment is not subjected to pulsating action and therefore results in a very smooth curve which is easy to read and calculate.

The power requirement of this machine is almost directly proportional to the volume of gas being handled. The compression ratio per stage for the centrifugal machine is comparatively small, rarely exceeding 1.2 in practice and most often is in the range of 1.06-1.15. Therefore, to produce the ratios with which we are most familiar on pipe lines, 4 to 10 separate stages would be required.

Our own flow studies had determined that with a station spacing of approximately 50 miles the compression ratio would be approximately 1.30. This also proved to be the most economical ratio for our system. We are developing this ratio by using three stages of compression, this also being the same number of stages used for oil pumping.

Comparing the centrifugal machine briefly with the reciprocating equipment, which up to now has been used almost exclusively for the long-distance transmission of natural gas, we find that reciprocating units at ratios with which we are familiar, about 1.5 to 1.8, generally have higher efficiencies than the centrifugal. But within the range of application of the centrifugal machine this may be overcome or balanced out by other factors.

Fixed Capacity

The reciprocating unit, when operating at constant speed and suction pressure, will deliver a fixed capacity at varying discharge pressure, whereas the centrifugal machine can be designed to deliver a fixed pressure at almost any capacity while operating at constant speed and suction pressure. The reciprocating equipment is essentially a low-capacity machine and is ideally suited for applications which require high compression ratios and small capacities. The centrifugal machine is essentially a high-capacity machine and is ideally suited for applications that require low compression ratios and large capacities.

In our own application we have a 1,000-hp. gas-engine unit producing a 1.3 ratio but only handling 50,000 M.c.f. or one-ninth of the total line capacity. Therefore, nine machines are required. The centrifugal, by contrast, will handle half of the line capacity or 225,000 M.c.f. but only through a ratio of 1.09. Therefore, three machines in series are required to handle the capacity, making a total of six units.

As previously mentioned; the greatest limitation remaining in the adoption of this machine to transmission service is the prime mover. The present installations are using electric motors directly connected to the compressors. These motors are 3,600 r.p.m., 2,300-volt squirrel-cage induction type and rated at 1,250 hp. The electric motors have certain advantages, such as low maintenance and low investment cost, and they are easily adapted for automatic regulation. Their greatest disadvantages are in having to provide an adequate supply of power at a reasonable cost and in the constant speed characteristic of the a.c. motors.

The steam turbine as a driver would provide variable speed, which is very desirable, but the increased maintenance and operation of the attendant steam plant, together with the water requirements necessary, present serious objections to its use.

The reciprocating gas engine through the use of step-up gears could be used, and variable speed would be present. But here the high first cost and operation and maintenance expense may not justify its selection. Finally the gas turbine, although still in the development stage, presents very attractive possibilities, since it would have varying speed and could be built in large horsepowers so that only one or two units would be required per station to handle the full volume of a large-capacity system. Very little is known as yet concerning the installation cost of this equipment or the maintenance and operation charges which would be necessary for it.

Now summarizing briefly the major points we have discussed concerning the use of the centrifugal compressor for long-distance gas-transmission lines, we find that these machines are:

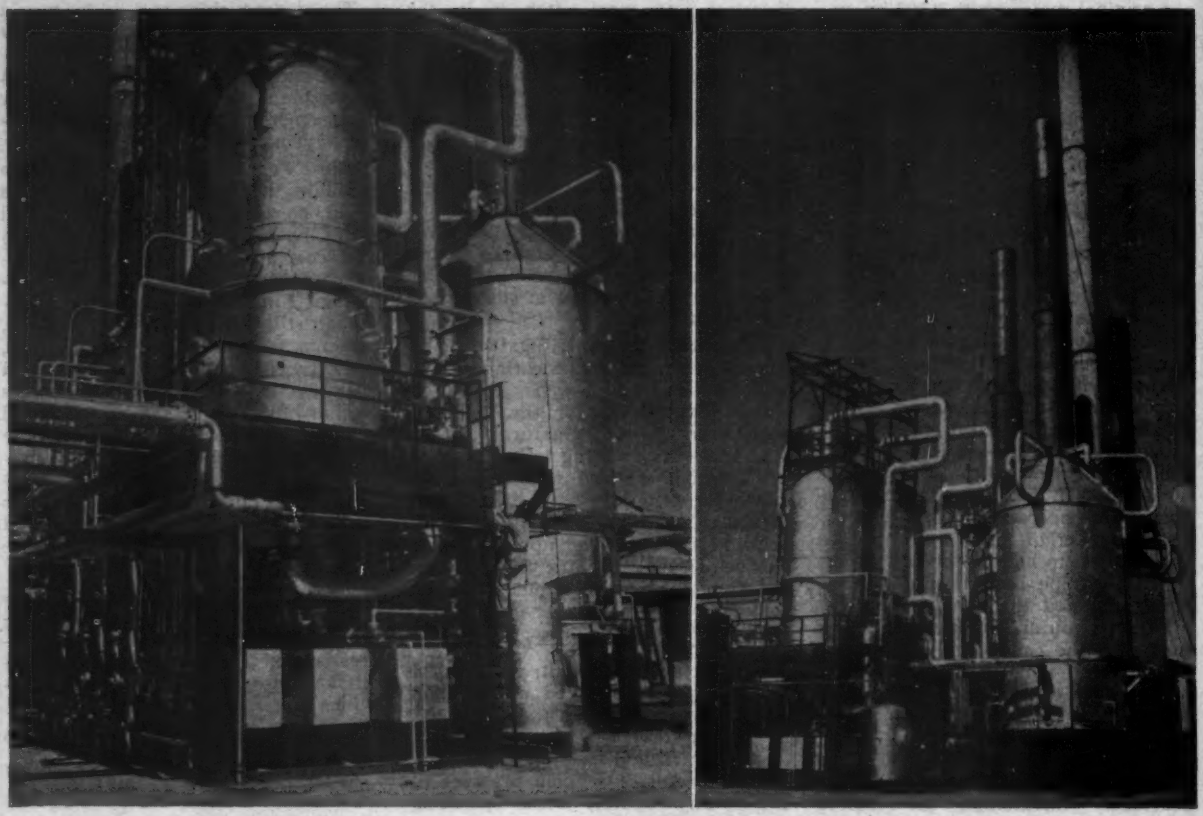
1. Essentially large-capacity and low ratio per stage.
2. Self regulating over a wide range of capacity.
3. Small maintenance and operating cost other than fuel.
4. The stock of spare parts required at a station is very small.
5. The reliability of rotating machinery makes them conducive to high line load factors.
6. The machines are very adaptable to automatic operation and to the most economical compression ratios.
7. Only a small number of units are required at any station.

It is estimated that the cost will be from $60 to $95 per horsepower to install these compressors at the former oil pump stations. These figures are based on our most recent estimates which contemplate increasing the capacity of the system by 75,000 M.c.f. bringing the total capacity to 508,000 M.c.f. To do this will require additional compressors at each station. Some of the motors will have to be rewound and some new motors will be purchased. In most stations we will install 10 to 12 units where formerly there were only 6 oil pumps, so that a considerable amount of new construction will be required in making these installations.

Of course, we have not had enough time to develop the operating costs for this equipment but all of our studies and estimates have indicated that this will be in the neighborhood of $6 to $7 per horsepower per year, not including fuel or power. This is about one-half of the corresponding cost for reciprocating equipment.

The experience to date by Texas Eastern with its units is quite interesting. We now have in operation at various stations along the line a total

(Continued on page 104)



Left: Layout of the catalytic unit is aimed toward compactness. As may be seen in this photograph of the catalyst chambers and process heater, little space outside of operator working areas is unused. The three equipment items of rectangular cross-section located below the catalyst chambers are heat exchanger sections. Right: This view of the McPherson Perco unit shows the process heater in the foreground. To the right and back of the process heater is the steam superheater for the unit. The third heater for the process is located behind and to the left of the process heater and operates in gas-oil reboiler service. Both vessels located left are catalyst chambers

N.C.R.A. Catalytic Desulfurization Reforming Unit Operates on Variety of Charging Stocks

by R. B. Tuttle

SINCE its completion early this year, the Perco catalytic desulfurization-catalytic reforming unit in the McPherson, Kans., refinery of the National Cooperative Refinery Association has been operated on a number of different type charging stocks. These stocks have included straightrun gasoline, cracked gasoline, straightrun naphtha, and cracked naphtha both alone and in various combinations. In most of these operations, the processing or catalyst-bed temperatures were raised by approximately 50° F. increments to explore the various temperature ranges for each stock or combination of stocks. The several runs were made on a more or less exploratory basis and data on each were recorded in detail for future use in determining the optimum operation under all general refinery conditions.

Low End-Point Gasoline Used

On the initial operation the unit was put on stream on a low-end-point straightrun gasoline. Runs on this straightrun material were made at five different temperature levels. For the first operation, temperature of the catalyst bed was maintained at 795° F. In the succeeding tests, the bed temperatures were raised to 845°, 900°, 940°, and 995° F. or approximately 50° increase per day. Total sulfur of this straightrun charge was only 0.021 weight per cent and the product tested doctor sweet for each of the five different temperature levels. Results on operations when processing this straightrun gasoline at 995° F. are given in Column A in the accompanying table.

The second set of test runs was made on a blend of thermally cracked gasoline and straightrun naphtha. This blend varied from a 50-50 mixture to 40 per cent gasoline and 60 per cent naphtha. Catalyst-bed temperature levels on which results were reported ranged from 745° to 950° F. and as in the operations where runs were made on straightrun gasoline, temperature increments averaged approximately 50° F. Maximum total sulfur of the charge was 0.074 weight

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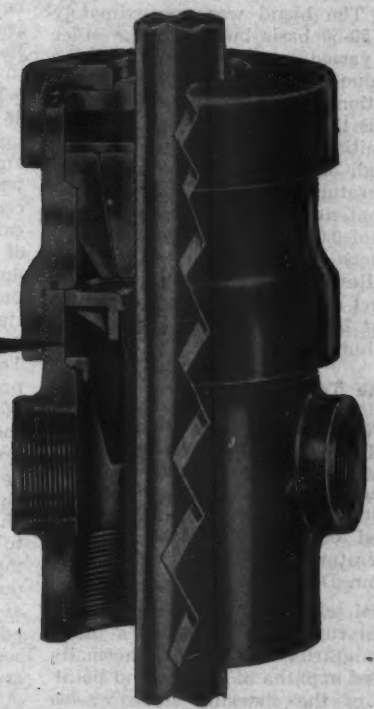

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Column—	A		B		C		D		E	
	Low E.P.S.R. gasoline charge		Thermal cracked gasoline and S.R. naphtha charge		Thermally cracked gasoline and thermally reformed gasoline charge		Thermally cracked gasoline, thermally reformed gasoline and S.R. naphtha charge		Straightrun naphtha and cracked naphtha charge	
Test—	Charge	Product at 995	Charge	Product at 900	Charge	Product at 775	Charge	Product at 895	Charge	Product at 985
Gravity, °A.P.I.	66.2	66.4	58.7	62.0	59.3	67.6	56.7	57.8	47.4	55.4
Reid vapor pressure	7.2	1.20	3.6	7.5	5.2	8.4	3.5	7.4	....	9.5
Total sulfur, wt. per cent	0.019	0.007	0.049	0.025	0.079	0.039	0.054	0.038	0.116	0.028
Doctor test	Sour	Sweet	Sour	Sweet	Sour	Sweet	Sour	Sweet	Sour	Sweet
Distillation, °F.:										
90 per cent	282	294	336	322	346	267	354	345	420	344
End point	332	356	388	375	388	333	406	392	456	380
A.S.T.M. octane number:										
+0 cc. TEL	51.8	62.0	56.5	62.8	62.7	71.5	56.0	60.5	43.0	60.2
+1 cc. TEL	63.3	71.4	64.5	70.8	68.4	76.5	63.3	68.2	56.2	68.3
+3 cc. TEL	72.1	76.3	70.4	76.3	73.7	80.1	71.2	74.5	62.0	75.2
Octane number increase:										
+0 cc. TEL	....	10.2	....	6.3	....	8.8	....	4.5	....	17.2
+1 cc. TEL	....	8.1	....	6.3	....	8.1	....	4.9	....	12.1
+3 cc. TEL	....	4.2	....	5.9	....	6.4	....	3.3	....	13.2

per cent. Tests on the charge and the product for the operation at 900° F. are given in Column B.

Charge stock for the third series of tests was a blend of thermally cracked and thermally reformed gasolines. The blend was approximately on a 50-50 basis but as in the other tests varied somewhat from time to time due to changes in other refinery operations. Processing temperatures on this third group of tests ran from an initial temperature of 725° F. through 775° and 825° to a maximum temperature of 900° F. The total sulfur content of this blend was a maximum of 0.088 weight per cent and all products were sweet to the doctor test. Results of the various tests on product and charge for the particular test at 775° F. are listed in the table in Column C.

One Temperature Level Tried

Only one temperature level of processing was tried in processing a blend of thermally cracked and reformed gasolines and straightrun naphtha. Results on this test run which was carried out at a catalyst chamber temperature of 895° F. are shown in Column D.

Final tests in this series of experimental runs were made on a blend of straightrun naphtha and thermally cracked naphtha of 430-450 end point. Most of the charging stock was a bottoms product from an end point cutting operation and contained a maximum of 0.116 weight per cent sulfur. Tests on this material were made at processing temperatures of 965° and 985° F., the product from both test runs being doctor sweet. The results obtained on one test at a temperature of 985° F. are shown in the table, Column E.

The basic flow plan of the Perco catalytic desulfurization-catalytic reforming process installed at the N.C.R.A. refinery is similar to that given in the process section of The Oil and Gas Journal, April 1, 1948, issue. Major changes in the process layout from the basic diagram include a heat exchanger in the fractionator overhead and a reboiler in the stabilizer column. The feed stock passes through one side of the fractionator overhead exchanger before entering the exchanger on the catalyst chamber outlet. Bottoms product from the fractionator, which is equipped with the Koch Kaskade trays, is yielded to thermal reforming charge stocks.

Processing periods have varied from 36 hours to several days depending upon the type stock being charged and the temperature of operation, while regeneration periods are of the order of 18 hours. Regeneration of the catalyst is required due to deposition of carbonaceous matter on the catalyst during processing and consists in burning off this carbonaceous material, usually referred to simply as "carbon," with an air-steam mixture. The air-stream ratio utilized is approximately 3 cu. ft. of air per pound of steam with steam consumption in the range of 12,000 to 13,000 lb. per hour during the actual regeneration operation. Temperature of the air-steam mixture is about 750° F. on entering the reactor. Ratio of steam to air is regulated to maintain a maximum temperature of 1,400° F. during regeneration while the rate at which the air-steam mixture is added determines the length of the regeneration period. Combustion gases are released to the atmosphere via a vent stack.

Deposits Increase

Length of the processing period and requirements for catalyst regeneration depend upon the amount of carbon deposition which in turn is dependent upon the type of charge and temperature of operation. Thermally cracked stocks and mixtures containing cracked materials show an increase in carbon deposition over straightrun gasoline and ranged up to 0.35 weight per cent of the charge depending upon the quantity and nature of cracked materials in the charge. Maximum values of carbon deposition are shown when the charge consisted only of thermally cracked stocks. The ultimate life of the catalyst, has, of course, not been determined. However, in another unit, catalyst has shown an activity of 85-90 per cent even after some 7,000 regeneration cycles.

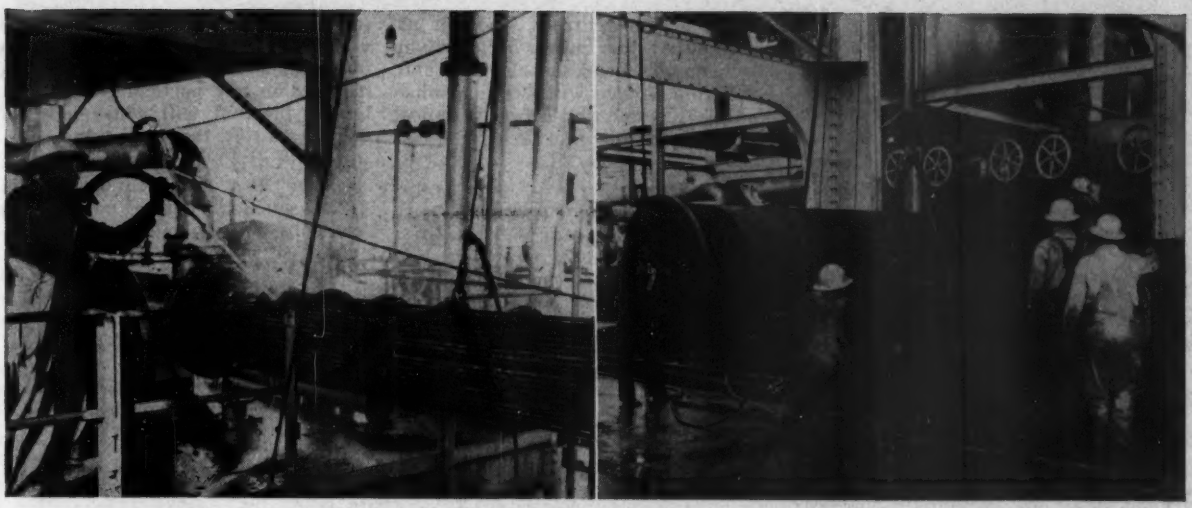
Low Pressures Desirable

Operating pressure in the reactors may range from 30-150 psig. The lower pressures, however, are generally desirable since olefin formation is more favorable under such conditions. Pressures are controlled at the fractionator overhead receiver and current operations are carried out at approximately 90 psig.

Gum characteristics of the gasoline are improved when treated in the Perco unit as evidenced by a reduction in the use of inhibitor in treated gasolines over that of gasolines produced in the refinery before the unit was placed in operation. In general, no serious corrosion problems are expected in the operation of the unit since alloy materials were utilized where indicated.

The N.C.R.A. McPherson refinery has a crude-oil charge capacity of 20,000 bbl. per day. Oil charge to the refinery is an all-Kansas crude having 0.40-0.50 weight per cent sulfur content. Composition of the feed now being run in the unit is approximately 70 per cent thermally cracked gasoline and 30 per cent straightrun naphtha. Product of the unit is a 405-end-point doctor-sweet gasoline. Capacity of the Perco unit is specified as 5,000 bbl. per day. By way of general results, it is significant that with the operation 50 per cent of crude may be yielded to gasoline meeting Ethyl specifications as compared to 43 per cent prior to the catalytic operation when end point undercutting was required.

Koch Engineering Co., Wichita, designed the equipment for the unit which was constructed by regular refinery maintenance personnel. The process is licensed by the Perco Division, Phillips Petroleum Co., Bartlesville, Okla.



Maintenance work on heat exchangers at Magnolia Petroleum Co.'s Beaumont, Tex., refinery. Left: Cleaning shell side of exchanger bundle with high-pressure water. Right: Exchanger bundle suspended by suitable sling, showing boards employed to protect tubes from suspending cables and pull plate for removing bundle from shell

Maintenance And Repair of HEAT EXCHANGERS

by Alva B. Swain, Jr.

Alva B. Swain, Jr., is a chemical engineer with Magnolia Petroleum Co. He graduated in 1944 after completing studies at Texas College of Mines and Metallurgy and University of Texas. His experiences with Magnolia's Beaumont refinery include corrosion, and inspection and maintenance of refinery equipment.

PROPER maintenance and repair of heat-exchange equipment is important to the refiner. Modern refining depends much on properly operating heat exchangers to preheat incoming furnace charge stocks, cool or condense side or overhead streams for product storage, and generate steam for use in the plant. When all heat exchangers are functioning properly, fuel and cooling-water consumption is kept at a minimum and evaporation losses of the lighter hydrocarbons are low. However, heat-exchange equipment that is functioning improperly represents a loss in income from otherwise salable products, a decrease in charge rates, and an additional expense for cooling water and fuel. Assuming that the equipment is properly designed, this malfunction may be attributed to one of two things, or both: fouling and improper maintenance.

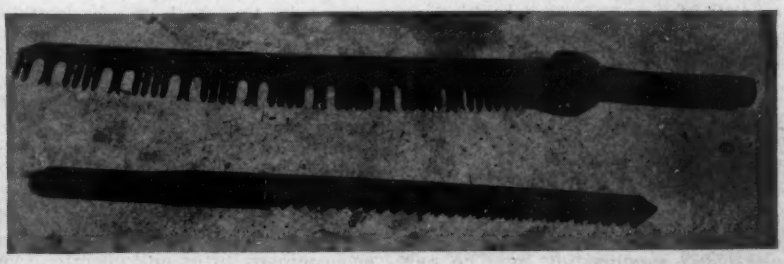
The conventional shell-and-tube heat exchanger is composed of some 15 main parts. The tube bundle is the core of each exchanger and is the element which has the most bearing on the amount of heat transferred. Also, the tube bundle is the part that receives the greatest amount of attention. The term "tube bundle" is that part which is composed of: stationary tube sheet, floating tube sheet, tubes, baffles, support plates, tie rods, and spacers. It is essential that all these parts be in a serviceable condition in order to maintain the desired operating characteristics.

Disassembly and Bundle Removal

The preliminary step in preparing a tube bundle for maintenance operations is the removal of the channel cover, channel, shell cover, and floating head cover. Very frequently the retaining bolts on these pieces are difficult to remove. This is particularly true in the case of high-pressure units which have large-diameter bolts or bolts which operate at high temperatures. Large bolts with coarse threads are more difficult to remove than the smaller retaining bolts. A larger number of small bolts should be used on such installations.

Most refiners use a bolt lubricant of graphite suspended in a high-volatile oil, but the bolting is still rather difficult to remove. The lubricant, contaminated by waste oil, will eventually coke in the threads in high-temperature bolts. Success has been reported by some refiners who have used a colloidal suspension of copper in a volatile oil. Operating temperatures remove the oil without coking, leaving a copper film on the threads. The film acts as a lubricant and allows easy removal of the nuts.

Occasionally, the difficulty encountered is not due to the lubricant or the size of the bolting, but to the excessive tightening of the bolts. Tight leakproof joints can be accomplished without overtightening



Types of saws employed to remove heavy deposits from shell side of exchanger bundle

by using proper gaskets, good gasket compounds, and an impact wrench.

Bolts exposed to corrosive fluids in the shell become difficult if not impossible to remove. This, however, is a specific problem and can be solved only by the use of corrosion-resistant bolting.

Handy rigging gear is of great importance as each piece is unbolted and ready to be lowered to the ground or deck. If permanent monorails and hooks are built over each exchanger or bank of exchangers, hoists may be used by the worker dismantling the exchanger to lower the parts he removes. This is time saving and prevents the possibility of men attempting to move heavy parts which could injure them.

Normally, tube bundles are easily removed by the use of air winches and snatch blocks. Occasionally, the shell side becomes so fouled with coke, foreign matter, or corrosion products that bundle removal by ordinary methods is impossible. When this is the case, mechanical jacks are used to apply a force against the floating tube sheet and supplement the draw lines. A piece of wood should be placed between the jack and tube sheet to prevent localized damage. In extreme cases, these measures are insufficient. The shell may then be struck with heavy mauls as maximum force is applied by the jack and draw lines. With these devices, the bundle can be "inched" from the shell. Steam can be applied to the shell side, but should be done with caution.

When all else has failed, the tubes can be cut just behind the float-tube sheet and the bundle removed in pieces.

When the bundle is removed from the shell, a sling should be used to lower the bundle or suspend it while being cleaned. The sling should give ample support and not allow the suspending cables to damage or crush the tubes. Some bundles are built with holes in the baffles or support plates to allow rigging gear to be attached. Such an arrangement is satisfactory when the baffle or plate is in good condition, but if this means of support is weakened by corrosion, it becomes hazardous to maintenance personnel.

When the bundle is lowered to the ground or deck, skids or planks should be placed as a rest. Steel or concrete decks may damage a tube sheet and cause leakage when the unit is reassembled.

Cleaning and Repairs

After the exchanger is dismantled and the bundle removed from the shell, a thorough inspection of the bundle and shell is made to determine what steps must be taken to put the exchanger in an operable condition. Let us first assume that the bundle is fouled and no serious corrosion has occurred. Also, let us assume that the bundle in question has been in service as a cooler and has become fouled with water residue on the tube side and severely fouled with coke and sulfide scale on the shell side.

There are five methods to clean the tube side: water, compressed air, drilling, chemicals, and sandblasting. The last named is to remove extremely hard scale and should be used with extreme caution to prevent scoring the brass tube wall.

Water or compressed air will effectively remove soft scum or residue from the water (tube) side. This is accomplished by a "lance" fabricated from a short length of ½-in. pipe with a tapered adapter on the outlet and a quick-opening valve on the inlet. The adapter is tapered to produce a tight joint in a tube end that can be easily broken when the tube is clean. This method is satisfactory for cleaning the tube side of most coolers.

However, if the tube-side fouling is caused by a hard carbonate scale, drilling, chemical cleaning, or sandblasting is necessary.

Should drilling be selected as the method to remove the scale, the tools to be used are: a high-speed air motor, a hollow drill rod, and a bit. The motor rod, and bit allow a scavenging agent to pass through them and out the bit to wash drillings as they are removed from the tube wall by the tool. Normally, this tool will sufficiently clean a fouled tube, but some mechanics follow this operation with a steel brush attached to the rod to give the tube a more polished appearance.

A third method of scale removal is chemical. Water scale can be effectively removed by circulating an inhibited solution of hydrochloric acid through the tube side. This, of course, must be done with the bundle in the shell and the exchanger assembled. All techniques employed in chemical scale removal consist of two steps: (1) circulation of solvent, and (2) flushing of exchanger with water to remove acid and loose suspended insolubles from the bundle. Both steps must be performed with equal thoroughness for insufficient acid circulation will prevent complete scale removal and improper flushing will not purge the unit of acid nor wash the unit of insoluble sludge. High wash-water velocity is important in thoroughly cleaning the unit after scale removal. It is not advisable for the refiner to attempt chemical cleaning by maintenance personnel unless such a practice is preceded by study and research in the selection of proper inhibitors. If chemical cleaning is desired at occasional intervals, it should be done by a reputable firm thoroughly familiar with chemical treating.

Finally, sandblasting may be employed to remove a hard scale. Usual sandblasting techniques should be used with emphasis placed on the importance of preventing prolonged blasting on any particular tube. Prolonged blasting will cause localized damage to soft, thin-wall tubes.

Attention is now to be directed to cleaning the shell side of the bundle. The mechanical method narrows the selection of tools to two, or a combination of both. The clogging material may be removed by saws or high-pressure streams of air or water. The saws are run in the lanes between the tubes to loosen the fouling material. This operation is followed by a high-pressure air stream or water. Steam may also be used as a final remover.

Occasionally, the scale is of such a nature that it can be effectively removed with only air or water streams.

The shell side, like the tube side, can sometimes be chemically cleaned. However, chemical removal of refinery scale and deposits is more difficult than water-scale removal. Many attempts have been made to remove various types of refinery scale and deposits, but not always have these attempts been satisfactory. Generally speaking, it may be said that only in cases will chemical treating completely clean the oil side of an exchanger. Most usually, chemical treating makes mechanical cleaning easier and reduces the time required to clean the bundle.

If the bundle in question is an oil-to-oil exchanger, the tools required to clean the tube side include those previously mentioned for cleaning the tube side of a cooler. In addition, an adaptation of the air lance employes steam to precede the drill in cleaning tubes clogged with tarry substances and coke.

Many types of drills and bits are being marketed and selection of a particular type depends upon the opinion of those chosen to select tools. All the tools will clean a bundle, but certain types accomplish the job in less time and more thoroughly than others.

Inspection of the tube bundle, its parts, and the shell must be made to determine their reliability for continued service. No practical inspection method other than visual inspection has yet been devised to determine the value of a bundle. Once the bundle has passed visual inspection it is replaced in the shell and hydrostatically tested for tube and gasket leaks. Tubes which fail on test are plugged with tapered steel or brass plugs, depending on the services. A bundle that has developed an excessive number of plugged tubes is retubed or replaced by a spare bundle.

The shell, on the other hand, may be checked for metal thickness as well as visually inspected. The writer's company owns and operates two instruments by which the metal thick-

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ness may be determined—the Penetron and the Audigage. Both instruments are nondestructive in their method of determination. Additional precaution against thin shells is taken by installing numerous "sentinel" holes in each shell. These holes are 3/32 in. in diameter and drilled to a depth equal to the retirement thickness of the vessel. Should one of these holes begin to "weep," indicating a thin shell, tapered pins are kept on hand to be driven into the leaking hole. The shell is then replaced at the next unit turnaround.

Exchanger parts (such as shells, channels, channel covers, and shell covers) which operate in extremely corrosive services, are protected by corrosion-resistant linings. These linings are plug welded or strip welded. Both types of linings have their advantages and disadvantages and selection of the proper type depends on past experience or the experience of others.

Many times, tube sheets are severely attacked and become corroded to such an extent as to no longer possess sufficient corrosion allowance. Such tube sheets represent a relatively large investment in material and machine work. These sheets may be reconditioned by cladding with a corrosion-resistant material. This cladding is accomplished by machining a portion of the affected face from the sheet and making a "sandwich" of the sheet, a silver solder and the corrosion-resistant material. The clamped sandwich is then placed in a furnace, heated to the proper temperature, removed from the furnace, allowed to cool, and then machined to the original dimensions. These operations must of necessity be performed in a shop equipped to handle such work. This gives a usable sheet for a portion of the cost of a new one.

Bundle Replacement and Assembly

Bundle replacement and assembly very seldom present a problem. All parts are clean and the clearances between parts are sufficient to allow easy passage. Occasionally, however, a new bundle built to original dimensions will fail to pass into an old shell without some difficulty. This is usually caused by the original shell becoming out-of-round to the extent as to not accommodate the baffles cut to design clearances. When such is the case, the baffle diameters are reduced by grinding, but this remedial measure must be taken with discretion. Too often, mechanical personnel perform this operation only to insure bundle passage with no regard for its effect on the heat-transfer quality of the exchanger. Excessive grinding of the baffles increases the clearance between baffle and shell allowing large amounts of shell-side fluid to bypass the bundle. Secondly, the high velocity of the fluid through this aperture creates an erosive action on the shell which in turn causes premature failure of the shell.

When the bundle has been returned to the shell and the exchanger reassembled except for the channel cover, the unit is ready for hydrostatic testing. Tubes that develop leaks are plugged with tapered brass or steel plugs, enabling additional service life to be gained from the bundle before extensive repair is necessary. Generally speaking, brass plugs are used to plug brass tubes and steel plugs for steel tubes. Gasket leakage is occasionally found during test. Failure of a gasket joint may be due to damaged surfaces, improper fittings or damaged gaskets. Usually, gaskets are reused if the condition is found to be good. Careful examination must be made of the gasket before reuse, however, because failure of a gasket in service is expensive. Not only are maintenance costs unnecessarily increased, but there is the hazard of material damage to equipment and injury to operating personnel.

Leakage may also develop in a tube in the roll. That is, in the joint at which the tube is rolled into the

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tube hole. Such leaks can usually be stopped by rerolling in the field. Rerolling must be done with caution, for overrolling of a tube reduces the wall thickness and renders the tube incapable of producing a leakproof joint.

Maintenance as Affected by Design

In the petroleum-refining industry, long experience has proved that particular designs or types of shell-and-tube heat-exchange equipment are unsuitable. By virtue of the fact that the majority of refinery streams are contaminated by solids, semisolids, or agents capable of producing these contaminants, efforts must be directed toward eliminating conditions which tend to concentrate the contaminants at any one point. Heat-exchange equipment tends to act as strainers in such streams. To rectify such a condition or make cleaning easy and rapid, it is necessary to incorporate certain features in the design of exchangers. Orifice-flow type of baffling in which the in-shell fluid passes from baffle to baffle through the annular opening between the tube o.d. and baffle tube hole i.d. is objectionable. These minute openings become easily and quickly plugged with coke and impurities causing an increased pressure drop through the unit. The annular openings are very difficult, if not impossible, to clean. As a result, once the bundle is fouled, it can never be returned to its "as new" condition without retubing. It is therefore desirable to employ crossflow baffling in which the fluid flows around the baffle and across the tubes.

The use of horizontal longitudinal baffles in exchanger bundles to produce a two-pass shell side is also objectionable. The horizontal longitudinal baffle provides a shelf or tray upon which foreign particles may collect. The baffle not only hampers cleaning efforts, but lends to rapid bundle deterioration. For example, in split-flow straightrun-gasoline condensers on units processing sour crudes the long baffle collects debris from the gasoline stream. The debris absorbs corrosive agents which in turn attack the tubes and baffles. Since this debris is never completely removed, corrosion can continue unhampered.

In discussing baffling, it might be well to mention the selection of material. Generally speaking it is desirable to select baffles and tubes of similar metals. This is to prevent localized corrosion due to galvanic action.

Finally, it is desirable to select heat-exchange equipment in which the tube-hole layout is on square pitch with a minimum of ¼-in. cleaning lanes between tubes. This spacing is adequate to accommodate cleaning tools and flushing streams. Such spacing allows shell-side cleaning to proceed without being hampered by tubes on staggered rows as in case of triangular-pitch bundles.

Conclusion

The problems encountered in the repair and maintenance of heat-exchange equipment are indeed numerous and varied. This article has been an effort to point out the most common of these problems and indicate the most successful methods employed in rendering an exchanger operable. Corrosion prevention for heat-exchange equipment is a broad subject in itself and has been discussed herein only as it affects maintenance.

BOOKS

GUIDE TO THE GEOLOGY OF CENTRAL COLORADO. Quarterly of the Colorado School of Mines, Golden. 176 pp. $3.

This issue of the quarterly was published as the guidebook for the three field trips of the thirty-third annual meeting of the A.A.P.G., April 26-29. Included are 38 figures, 14 plates and a 24-by-28-in. index map of Colorado, showing major geologic structures and significant oil and gas information. In addition to discussions of principal features of the areas in which the field trips were made, and road logs for the trips, there are authoritative articles on the geology of the eastern flank of the front range of Colorado; the Kokomo, Gilman, and Leadville mining districts; the Climax molybdenite deposit; the oil-shale deposits in Garfield County, and others.

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10 Years Under the Natural Gas Act

*by William A. Dougherty**

ON June 21, 1938, President Franklin Delano Roosevelt affixed his signature to a legislative enactment referred to as the Lea bill, H.R. 6586, and thereupon commenced regulation by the Federal Power Commission of the transportation and sale of natural gas in interstate commerce.

In these final days of the first decade of federal regulation, it is appropriate to consider these past 10 years. Let us consider these past years not by reciting the detailed list of actions and proceedings marking out the tortuous path of regulatory experience, but by considering broadly the significance of past events.

Divided Opinions Among FPC Members

Today the Federal Power Commission stands divided on issues of vital importance to producers, transporters, distributors, and consumers of natural gas. This division of opinion became clearly marked in the hearings before the Senate Committee on Interstate and Foreign Commerce. The commission is divided on the basic question of amending the Natural Gas Act in any respect whatsoever. In this controversy are disclosed the fundamental thinking and regulatory objectives of the individual commissioners. The direction and character of the future of the natural-gas industry depend largely upon which of these views prevail.

To get the proper perspective, let us have a flash back to 1938. At the New Orleans meeting (Natural Gas Department, American Gas Association) N. C. McGowen, then president of the American Gas Association, spoke on the subject, "Ten Years of Progress," showing how the industry had forged ahead since 1929. Marketed production had increased from 1.31 trillion cubic feet in 1926 to approximately 2.5 trillion cubic feet in 1937. This was accomplished without federal regulation and despite the economic depression of the early thirties. Natural-gas reserves were estimated at 62 trillion cubic feet.

Ten years later, total proved natural-gas reserves as of December 31, 1947, were 165.9 trillion cubic feet, according to the report of the American Gas Association Committee on Natural Gas Reserves headed by the same N. C. McGowen. Production in 1947 was 5.63 trillion cubic feet, while reserves added were 10.98 trillion cubic feet. The State of Texas alone is credited with 90 trillion cubic feet.

The natural-gas industry at the end of 10 years under the Natural Gas Act finds itself with market demands it cannot satisfy, needs for pipe it cannot buy, and vast gas reserves in the hands of producers hesitant to sell to interstate pipe lines for fear of federal regulation. Verily we are in a dismal morass of criticism, conflict, and consternation.

It cannot fairly be claimed that the Natural Gas Act is the cause of the present predicament. I agree with the statement made in the commission's report entitled "The First 5 Years Under the Natural Gas Act," that the act "is an effective instrument of regulation." But I do claim that the character of regulation under the act and the direction in which that regulation now seems pointed has been and will continue to be a dominant reason for the difficulties with which the industry today is struggling.

The introductory section of the Olds-Draper report on Docket G-580 states that the act "had enabled the commission to put the interstate natural-gas business on a sound and expanding basis, with the consumer interests served by large rate reductions and the prospect of still further lowering of the cost of natural gas."

The subject of natural gas is an allied part of the oil industry although the commodity that is natural gas has itself a full range of operating and technical phases, all the way from the wells and plants in the fields to ultimate burner tips or other final usage.

Besides the operating and technical phases pertaining to natural gas, there is however another side—the "regulation" or quasi-judicial. Interesting, therefore, to this second side of the natural gas business is the accompanying article, which gives a review of many factors and happenings under the federal Natural Gas Act.

There is no doubt that today the interstate natural-gas industry is on a sound and expanding basis, but that accomplishment has been realized in spite of rather than because of federal regulation. In June 1938 we had a healthy, thriving industry that had made tremendous strides in the preceding 10 years. The fact is that during 1925 to 1938 all but three of the present large interstate pipe-line companies were organized and constructed into their present market areas. During these years the industry acquired such momentum that the past 10 years is but a continuation of the start made before regulation.

Since the advent of the Natural Gas Act the only entirely new lines constructed have been the Tennessee Gas Transmission Corp. line to the Appalachian area, the joint line of El Paso Natural Gas Co. and the California companies from Southwest Texas and New Mexico to southern California, and the Big Inch lines, which were constructed as oil lines without the necessity of a certificate from the Federal Power Commission. All other construction has been expansion by companies to meet increased demands of their markets served before the passage of the Natural Gas Act.

But when we come to the field of rate reductions full credit must be given to the Federal Power Commission. These now approach $40,000,000 annually. The price of gas was reduced below competing fuel costs in many communities. Since the price increases of coal and fuel oil during the past 2 years, natural gas costs so much less than other fuels that there is no competition. It is self-evident that the rate policies of the Federal Power Commission largely are responsible for the too rapid growth of the demand for natural gas for house heating and for use by industries, a growth beyond the present ability of the gas companies to supply.

Details of Rate Regulation

In this field of rate regulation the commission, with the approval of courts willing to overrule long-established constitutional principles, has made rate history. Long before the

*Attorney-at-law, New York, N. Y. Paper presented at spring meeting, Natural Gas Department, American Gas Association, Houston, Tex.

Natural Gas Act was passed the Federal Power Commission had been seeking every opportunity to overthrow the principle of fair value in rate making. In cases coming to the Supreme Court of the United States from California[1] and Pennsylvania[2] the commission had appeared as a friend of the court, urging the adoption of the prudent investment or original-cost method.

So when the passage of the Natural Gas Act brought complaints against rates the great day had arrived for the commission's direct action. First was Natural Gas Pipeline Co. of America, and a preliminary order of the commission was upheld by the Supreme Court.[3] In that case Justices Black, Douglas, and Murphy, in a concurring opinion, deemed the occasion appropriate "to lay the ghost of Smyth vs. Ames which has haunted utility regulation since 1898." The ghost still appeared when Hope Natural Gas Co. won from the Court of Appeals of the Fourth Circuit[4] a reversal of the commission's order reducing its rates. But came the day when the Supreme Court reversed the Court of Appeals, affirmed the commission's order, and a new era of rate making was firmly launched.[5] The Hope case created much discussion, principally because of the five separate opinions, including that of Justice Jackson, who concurred but criticised the application to natural-gas production of the cost formula of utility regulation.

There followed in turn the Panhandle Eastern[6] and Colorado Interstate-Canadian River[7] cases in which was challenged the commission's authority to include in the rate base at cost production owned by the pipeline company. By the margin of one vote the Commission's authority was sustained. Whenever I think of that case I recall those lines of John Greenleaf Whittier in his poem "Maud Muller": "Of all sad words of tongue or pen, the saddest are these 'it might have been.'"

Certificates of Public Convenience and Necessity

The Natural Gas Act as originally passed required a certificate of public convenience and necessity for a proposed pipe line only if projected to a market already served by another natural-gas company. The commission in its 1940 annual report recommended extension of the certificate authority over all construction. So there was enacted the present certificate form of Section 7, effective February 7, 1942. The industry lost the right, granted to a natural-gas company in the original act, to enlarge facilities for the purpose of supplying increased market demands in the territory in which the company already operated.

During the following 4 years the commission's docket became clogged with a variety of applications, the processing of each requiring the time of an examinar, staff members, and company witnesses. In some instances a year intervened between the filing of an application and the issuance of the order granting the certificate. Public hearings were required for the slightest proposed additional facilities, and the coal and railroad people utilized every conceivable method to delay and hamper the extension of natural-gas service.

Finally the commission worked out a shortened procedure[8] which has served well in eliminating delays where the additional facilities proposed are such as not to generate controversy. The commission's staff is to be commended for the manner in which it has expedited the granting of certificates for minor increases of capacity with little delay and a minimum of time and expense on the part of the applicant.

The long delays experienced in obtaining authorization for construction has had a direct bearing on the inadequacy today of the facilities of many natural-gas companies. True it is that there has been and still is a shortage of pipe to meet all demands. But the oil industry has not been hampered by regulatory procedures. It could make a firm contract for pipe at any time. Natural-gas companies, unable to sign a firm order until the proposed construction had been authorized by the commission, could not get a position in the schedules of pipe-line fabricators until the certificate was granted. The pipe went elsewhere.

Ultimate or "End" Use

A great deal has been said and written about the federal control over the ultimate consumption of natural gas. The phrase "end use" is found in much of the testimony given in Docket G-580. Lacking any specific authority under the Natural Gas Act to control the ultimate utilization of gas sold in interstate commerce, the commission has seized upon the certificate section as a means of accomplishing that end.

The certificate authorizing the acquisition and operation of the Big Inch lines by Texas Eastern Transmission Co. directed specific deliveries of gas to purchasers in lesser amounts than provided for in contracts with Texas Eastern, allocated a portion thereof to customers of Panhandle Eastern Pipeline Co., and then reserved the right to direct the disposition of the remaining gas. No certificate authorizing facilities of any substantial capacity now is issued without a condition imposed that no gas shall be sold to new customers without specific authorization of the commission, and in some instances a similar restriction is made as to additional deliveries to existing customers.

By this method of regulation, the commission can control the use of gas by refusing to authorize the delivery if the commission believes the gas will be consumed for a nonapproved use. Commissioner Olds in his recent testimony before the Senate interstate and foreign commerce subcommittee[10] declared that in his opinion the commission could regulate the use of gas through its power in granting certificates. A careful reading of the Olds-Draper report on Docket G-580 discloses that those commissioners talk in terms of a national fuel policy and urge that natural gas, the principal mineral fuel resource of the Southwest, be retained in the producing states for future industrial expansion. Thus the Natural Gas Act is to be used as a tool in over-all national planning and the producers in the individual states may be prevented from marketing gas to the interstate pipe lines.

It is in this field of regulation that we will experience the broadest developments in the next few years. The extent of valid action under the certificate provision has not yet been tested in court. That there is developing an invasion of regulation into the sphere of operations formerly exercised by management is clear.

Proposed Amendments

The above brief resume of the high points of regulation by the Federal Power Commission under the Natural Gas Act during the past 10 years makes clear why the industry has felt that amendments to the act are needed. Many are familiar with the events following the introduction of proposed amendments in the House of Representatives by Congressmen Rizley of Oklahoma and Carson of Ohio, and in the Senate by Senator Moore of Oklahoma.

Hearings were held before the House committee on interstate and foreign commerce in April and May of 1947, and before a subcommittee of the Senate committee on interstate and foreign commerce on April 29 and July 1, 1947. The House committee reported H.R. 4051, a revised bill, with a recommendation for passage. The bill came up for consideration on July 11, was debated and finally passed by a vote of 254 to 64. In the Senate the subcommittee reported the bill favorably but the full committee on July 17, 1947, voted against reporting it out. Subsequently additional hearings were held before the Senate subcommittee on February 4 to 18, 1948, which reported the bill with numerous changes to the full committee on April 1. A minority report was submitted by Senator Stewart of Tennessee. What action the full Senate committee will take now is anybody's guess but it is expected to give consideration to the matter shortly.

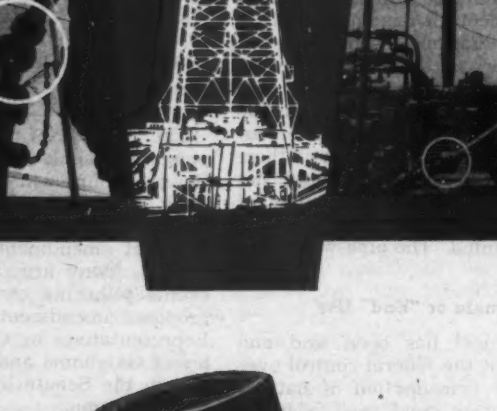
The bill reported by the Senate subcommittee holds to the jurisdictional lines of the Rizley bill, but adopts the proposal of Commissioners Smith and Wimberly which substitutes "commodity value" for "prevailing field price" for the allowance to a natural-gas company for its own produced gas.

The general purpose and scope of the bill are stated thus:

"The purpose of the bill is to clarify, rather than alter in any fundamental way, the original intent of the present Natural

FOR L[illegible] THAT "get out of line"

UNIBO[illegible]LL IS THE ANSWER



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The proven UNIBOLT coupling principle is employed to join the component parts of this fitting. As a result, trouble due to galling and freezing of threads is entirely eliminated by the Flexi-Ball design. It is assembled by the simple process of tightening one bolt with an end wrench. Even after extended periods of service, the joint can be quickly dismantled by releasing the bolt.

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UNIBOLT Flexi-Ball JOINT

Gas Act, which provides for the regulation of interstate pipe-line companies, with specific reference to their transportation or sale for resale of natural gas in interstate commerce. Its objectives are (1) to define more clearly the exempt status of producers and gatherers as well as local distributors, (2) to specify the standards to be used by the commission for rate purposes with respect to gas produced by natural gas companies in recognition of the fact that the production of natural gas is not a utility function, and (3) to provide a more definite service obligation on the part of natural-gas companies."

The first obpective is accomplished by a clear statement of the jurisdiction of the commission and a series of definitions. That there is need for a clarification of the status of the producer no longer is controverted even by the opponents. On February 23, 1948, Commissioners Olds and Draper submitted additional material for the record in a letter to the committee which referred to the Columbian Fuel Corp. case, the reliance which producers had placed upon it, and admitted grudgingly that the case of Interstate Natural Gas Co. vs. Federal Power Commission[11] had created some consternation among producers. Accordingly, there was suggested a specific amendment to the act which also appears as a part of the minority report submitted by Senator Stewart. Far from relieving the doubts of producers, this provision would make it clear that whenever the commission decides that the prices of gas in the field are too high it can exercise full and complete jurisdiction over the rates charged by producers, whether or not affiliated, if certain findings are made. These being:

"(1) that by reason of affiliation, or price-fixing agreement, arrangement, understanding, scheme or other device, or dominant position in a producing field or fields there is liable to be an absence or restraint of free and independent competition or (2) that there is an absence of arm's-length bargaining in such transactions. . . ."

The commission could then determine it is necessary or appropriate in the public interest for the protection of ultimate consumers to regulate the sales of natural gas to a natural-gas company, and could fix the price to be charged for the gas sold "by a person or persons engaged only in the production, gathering or processing of natural gas, including the production, gathering or processing hereof as an incident to the production of oil. . . ."

Certainly this proposal of Commissioner Olds clarifies the status of the producer, making it clear that he constantly is under potential price regulation. Doubts would be removed and the protection to producers temporarily afforded by Order No. 139 entered August 7, 1947, would be ended. That order, you will recall, by administrative interpretation declared certain sales and the producers making them not subject to regulation. Commissioner Draper dissented. Although Commissioner Olds supported the order, it is now clear on the record that he would vote to revoke the exemption thereby provided whenever he felt that a producer's sales price to a nonaffiliated pipe line was a "monopoly price," as he terms it. Unless the act is amended, jurisdiction over producers under the Olds theory will be exercised under rules laid down by the commission rather than by Congress.

The amendments now proposed by the Senate subcommittee do these things:

Section 1 of the act is amended specifically to limit the jurisdiction of the commission to the interstate transportation of natural gas for resale and to sales for resale after the beginning of such transportation. The commission is not to have jurisdiction over any operation so excluded from its authority whether carried on by a natural-gas company or anyone else. This jurisdictional statement is basic in the law. When read with the definition sections there can be no doubt but that the commission will be excluded from exercising any authority over production properties, including the sale of gas therefrom, whether owned by a natural-gas company or by one who has no pipe-line operations. Once the gas has been delivered to the transmission facilities of a natural-gas company then the subsequent transportation and any sale made from that pipe line can be regulated in all respects provided for by the present law.

Jurisdiction will extend until the gas has finished its actual movement across state lines and has arrived in the state of distribution. The definitions make it clear that a distribution company which receives such gas in its transmission lines located wholly within the state where the gas is distributed is not subject to jurisdiction even though such gas moves some distance within that state before it is actually put into the local service lines.

These restrictions on the jurisdiction of the commission are objected to strongly in the minority report of Senator Stewart, which seems to be based upon the testimony of Commissioner Olds and an announced desire for larger and further extensions of federal control both in the field of production and the area of distribution. These proposals, however, have the complete support of several state commissions and the National Association of Railroad and Utility Commissioners. Surely it cannot be contended that those state authorities are wholly without concern over the public interest of their consumers. There has been no justification anywhere in the entire record for retaining within the federal regulatory power local distribution companies which as an incident to their local service must move gas into their distribution areas from points of connection with an interstate pipe line.

The main point of controversy revolves around the proposal to allow to a natural-gas company a value for gas which it produces instead of a return of the investment through amortization and depreciation plus a 6 per cent allowance on the unamortized investment in production property. The principle proposed by the Rizley bill was the allowance of the prevailing market prices in the fields where produced. Chairman Smith and Commissioner Wimberly proposed a substitution which would allow a natural-gas company the reasonable "commodity value" of gas it produces which would be determined by comparison with other gas in the same field of comparable quality, volume, and pressure, delivered under similar conditions and with appropriate weight given to all of the various contracts and prices arrived at by independent bargaining between competing buyers and sellers. The commissioners favoring this proposal have stated that the present cost method is not economically sound or equitable.

The fairness and justice of such treatment would seem evident to any unprejudiced person. The farmer in Texas raising wheat or cotton is assisted by the federal Government in obtaining a price approaching parity with other commodities. The same federal Government acting through the Federal Power Commission seeks to prevent the owner of natural gas under the same Texas soil from realizing the commodity value, and limits him to a price related to costs incurred in some instances 30 years ago. It is important to note that since the Natural Gas Act has been in effect no owner of gas reserves has sought to build an interstate pipe line and no interstate pipe-line company has acquired its own gas reserves.

The remaining portions of the bill prescribe the methods to be used in allocating costs between the operations subject to and not subject to jurisdiction, create a public utility service obligation on the part of natural-gas companies which is not now written in the law and broadens the authority of the commission in issuing temporary certificates and requiring temporary interconnections between gas companies.

Until the Natural Gas Act is amended in accordance with the minimum proposals now approved by the Senate subcommittee there will continue to be dissatisfaction on the part of the consumers who cannot get all the gas they want, and unwillingness of producers to dedicate their reserves for long periods of time for the furnishing of natural gas for consumption in distant markets.

Can producers be expected to put their heads in the noose of potential jurisdiction now claimed by Commissioner Olds who objects to any amendment of the act curtailing his right to draw the noose tight?

References

1. R. R. Comm. vs. Pacific Gas & Elec. Co., 302 U. S. 388.
2. Driscoll vs. Edison Light & Power Co., 307 U. S. 104.
3. FPC vs. Nat. Gas P. L. Co. of Am., 315 U. S. 575.
4. Hope Nat. Gas Co. vs. FPC, 134 F (2nd) 287.
5. FPC vs. Hope Nat. Gas Co., 320 U. S. 589.
6. Panhandle Eastern P. L. Co. vs. FPC, 324 U. S. 635.
7. Colo. Inter. Gas Co. vs. FPC, 324 U. S. 481.
8. Order No. 130, issued March 29, 1946.
9. In the matter of Texas Eastern Transmission Corp., FPC Docket G-880, Opinion No. 157.
10. Statement made on February 6, 1948.
11. Interstate Natural Gas Co. vs. FPC, 331 U. S. 682.

Mechanization Program

(Continued from page 71)

and third in place, where with very little movement, they were butted up true and welded.

After the pipe was shop welded into 60-ft., three-length sections, a 20-ft. pallet for the straddle carrier was placed under it. In a matter of minutes the straddle carrier entered the shop, picked up two of these 60-ft. sections on the pallet and with no further help the 120 ft. of line was transported to the site and placed parallel to the ditch.

Next a fork lift, functioning as a crane with a sling around the forks, dropped each 60-ft. length into place in the ditch. After field welding the single joints 120 ft. of fine line was ready.

The Traxcavator moved in after completion of the line and, assisted by a small bulldozer, backfilled the excavation.

This job is typical of the methods now possible under the recently instituted Tide Water mechanization program. As a result of a detailed study by F. O. Campbell, mechanical superintendent, and G. Nigh, assistant mechanical superintendent of the mechanical department, a major plan, born 2 years ago, was aimed at the complete mechanization of all maintenance and construction work. As a result, the employes are enabled to improve their working conditions, work moves expeditiously, and the company has been able to help alleviate the current dearth of petroleum products.

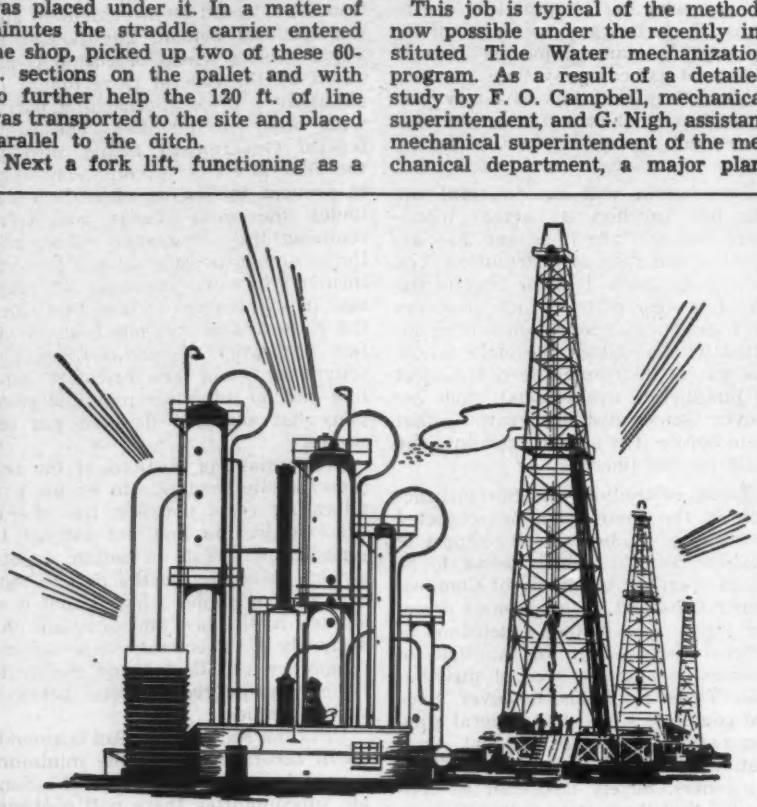
Flexibility Emphasized

In the selection of equipment, extreme emphasis was placed on flexibility of units. Any equipment which could only do one job was automatically rejected from consideration. When engineering and management prepurchase analysis of a unit showed its ability to function over a wide field of activities, specifications of the equipment were passed on to departmental foremen and supervisors for a practical evaluation and a similar analysis was required from them before any equipment was accepted for purchase. In spite of these detailed prepurchase studies and analyses, an amazing number of applications for each unit has developed which were not foreseen. For example, the large fork lift has been used as temporary support for an active 12-in. high-pressure steam line while hangers were being replaced. In fact, uses for the existing equipment have so multiplied that purchase of additional units has already been considered.

As part of the mechanization master plan, handling of heavy equipment loads from the material warehouse to the field has been simplified. A great deal of this type of material is being palletized. Provision has been made for direct entrance to the material warehouse with the straddle carrier. Pallets used with this unit will accommodate four 48 by 48-in. warehouse pallets. In the ultimate arrangement, a 2,000-lb. fork lift truck will collect palletized loads of motors, pumps, and heavy fittings, deliver them to large pallets on the warehouse floor at one of three points. When a complete load is assembled the carrier will pick up the load and drop it at final field destination. From here either the crane, or large fork truck can, in most cases, place the equipment on foundation. In addition to fork lift operation in the material warehouse, a 3-ton-capacity mobile crane is used to handle items not readily or conveniently palletized or accessible. This crane unit can reach out on a 17-ft. radius with a capacity of 800 lb., which increases to 3,000 lb. at a 7-ft. radius. It thus becomes possible to reach over piled material and remove an item without further shifting of pallets.

Work Made Easier

Employes have readily recognized the efficiency and dispatch with which these units are rapidly replac-



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ing hard grueling manual labor, and there has been a gratifying response in the care and pride taken by the operators in handling and maintaining the equipment. Continued management interest in the utility and application of the new units, frequent pictures for study and record, and an earnest endeavor to stimulate employe interest and pride have been extremely beneficial in this phase of the program.

Introduction of these methods has opened up a new field for employe activity through a "suggestion plan." Numerous ideas have been submitted by employes for facilitating operation and increasing efficiency and a high percentage have been acceptable and have received awards. Among these are removable droop toes for lift forks, a power worm to control fork spread, boomer winches on the straddle carrier, and a working scaffold, pallet type, for accommodating men and materials.

Machine operators were selected with care. Additional hazards arising from the extensive use of mobile equipment would obviously require careful operation. Consequently, drivers are instructed to "Be Safe First." This policy has been effective. Thus far the safety record of the mobile units is clear. The most simple, effective rule for safe operation seems to be **"SEE,** what, where and why you move, **BEFORE YOU MOVE."**

Efficient dispatch and monitoring of the movements of the fleet is becoming a problem with potential uses multiplying daily. Radio telephones in the cabs of each unit have been considered as well as the installation of a network of powerful loud speakers so placed as to give complete coverage of the refinery and tank-farm area. The latter plan, as well as being less expensive, would give contact coverage to all key personnel in the refinery. The use of the speaker system would be a valuable asset in directing men, equipment, and materials to an affected area in case of line breakage or fire, and would serve as an adjunct to protective patrol forces during the night.

14 Zones Created

It is planned to install a microphone station in the field headquarters office of the mechanical department and one at the telephone switchboard which will permit use of any plant phone for announcements. The refinery and tank farm have been tentatively split into 14 zones and any one, any group, or all speaker stations can be activated simultaneously.

As an example of how this system would function, it is assumed that a major line break has occurred. The mechanical field headquarters, knowing the areas in which all equipment is operating and areas where men are concentrated can, by picking up

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the nearest phone, order these facilities to the scene of the break. By prompt action, hazard and unit down time would be reduced.

The mechanization project embraces many smaller devices and accessories, all of which serve to improve working conditions. In this class are elevating tailboards for all trucks, portable hydraulic lift staging and numerous accessories for the caterpillar units.

To list all jobs performed by these mobile units would require more space than is available. As this is being written the fork lift truck is maneuvering into position alongside a 5-ton dumper with rear wheels sunk to hub caps in a soft construction area. The forks are run under the truck frame, up it comes, planks are inserted under the wheels. The fork lift backs off and is on its way to a pipe trench where it will jockey 10-in. pipe from the stock pile and string it out for making up. Later it will erect structural steel pipe stanchions. Tomorrow, it will be serving as a bulldozer or will raise six men and tools, on a pallet platform, 15 ft. above ground level to do a short job on a steam line.

The crane is picking a 15-ft. condenser bundle from a structure 45 ft. off the ground and placing it on a straddle carrier pallet. Presently it will be picked up for delivery on the pallet to the plate shop for cleaning or to an outside shop for retubing. Hours or days later, the reconditioned bundle will be returned by reversing the above order and reinstalled. By this method no useless handling, no lost truck time, and no harmful handling strains are encountered.

New Rock-Drill Application

(Continued from page 76)

drill air feed boom assembly. The assembly was slung from a single cable and was free to turn in any direction. Lateral movement was obtained by lifting or lowering the cat boom, longitudinal movement by forward motion of the tractor.

To complete the assembly and provide a self-contained unit, a 500 cu. ft. per minute compressor was towed behind the tractor. A 2-in. pipe was run to the front end of the compressor, equipped with a double manifold and fixed line oilers. Short air hoses were then run to each of the drills.

In operation it was only necessary to start the compressor, suspend the drill assembly over the ditch, and drill.

A stagger pattern of drill holes was used and the width of the drilling assembly was made to provide the correct pattern, the only adjustment necessary being the forward movement of the tractor as the drilling progressed. As the maximum depth of hole was from 6 to 7 ft., an 8-ft. steel was used and all drilling done with the steel centralizer in a closed position. This allowed full travel of the drill feed and saved the time normally involved in opening and closing the centralizer.

Advantages of this application are:

1. **Flexibility.** To go into operation it is only necessary to pick up the drill assembly with the boom cable, hook on the compressor and connect two hoses, and move to the drilling point. Connections can be made in 5 minutes. Disconnects can be made as easily.

2. **Adaptability.** Unit can be used to drill any width or depth of ditch in any kind of rock. It can operate over practically any ground that the crawler can negotiate.

3. **Speed and economy.** Unit operates with three men—one cat driver and two drillers. Under favorable conditions one driller can operate both drills.

Contractors Experience

Through the use of the Cleveland DR14 drifter drill's hole blowing and rotational capacity, its drilling speed and the control available in the DR30 air feed, no difficulty was encountered by the contractor in either hard

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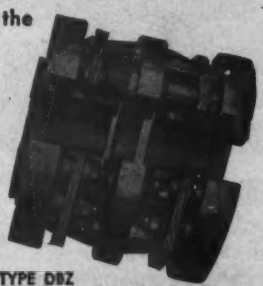
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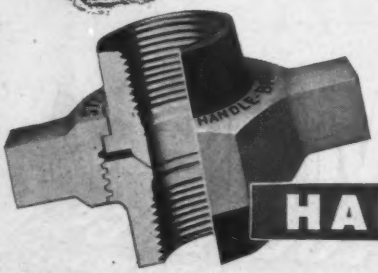

HANDLE-BAR

Sizes ⅛" to 4"

These easy to handle Hi-Speed Handle-Bar Unions have integral steel to steel seats, or completely fused bronze to bronze seats. The nut threads are modified Acme to facilitate easy and speedy assembly and disassembly. The seat design is a 45 degree cone, machined and cold rolled, to a ball seat on the male end. Furnished in black hub ends with Udylited nut, or all rustproof with Udylited hub ends and Parkerized nut.

4000 Test Unions sizes ⅜" to 4" inclusive are furnished with Briggs Standard steam threads in pipe ends.

6000 Test Unions sizes 2" to 4" inclusive have long pipe ends with A.P.I. line pipe threads.

HANDLE—BAR Unions are recommended for all services. Use a hammer instead of a wrench to tighten or loosen the nut.

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This Union has features that make it the most universally used Union. It is made to A.A.R. standards with integral steel to steel seats. The seat design is a 45 degree cone, machined and cold rolled, to a ball seat on the male end. The ends and nut are extra heavy and the nut threads are permanently lubricated and rustproofed with Udylite Cadmium.

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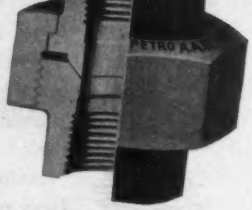
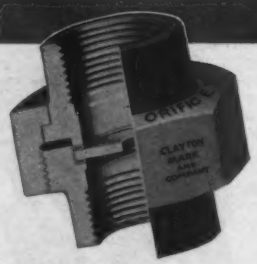


Sizes ⅛" to 3"

ORIFICE



Sizes ¼" to 3"

"ORIFICE" Unions, screwed, or socket weld are widely used for flow control of Steam, Oil, Ammonia, Chemicals, Water, Gas and Air. Also for metering and measuring. The ORIFICE is recommended for working pressures of 600 lbs. at 900° F., or 2000 lbs. at 150° F. Furnished with 18-8 stainless steel orifice plate and steel jacketed asbestos filled gaskets. These are set in a groove of solid steel to facilitate ease of tightening and to safeguard against possible blowing of the gaskets and resultant trouble.

The nut threads are Cadmium plated (UDYLITED) for permanent thread lubrication.

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ORIGINATORS AND PIONEERS OF STEEL UNIONS SINCE 1912

CLAYTON MARK & COMPANY

1900 DEMPSTER STREET • EVANSTON, ILLINOIS

or soft rock or in occasional mud slips, seamy, or fitchery ground. Although difficult to evaluate exactly, it was estimated that one double drill assembly replaces from 10 to 20 hand sinkers over any kind of ground.

Anderson Brothers now is operating six of these pipe-line units. The company has been drilling almost constantly for the past 5 months over 30 miles of pipe line with replacement of one rifle nut and two centralizers.

Application of Centrifugal Compressors

(Continued from page 85)

of 43 units, all of the same design. We have had some difficulties. We don't deny that, but we are also pumping a lot of gas, just 1 year and 4 days after taking possession of the property. One of our units placed on the line November 13, 1947, has never been down for any reason except power interruption.

We are operating all of our units as mentioned previously within the unstable region of capacity. We believe this has contributed more than any other single factor to our difficulties. It is also very probable that these are the only units in this country that are continuously operating in an unstable region.

In addition, our stations are being operated in parallel. In other words, we have three units in the pump house on the 24-in. line and three units in the pump house on the 20-in. line, with a common suction and a common discharge, and this is a very difficult operation for centrifugal equipment at certain points on the characteristic curves.

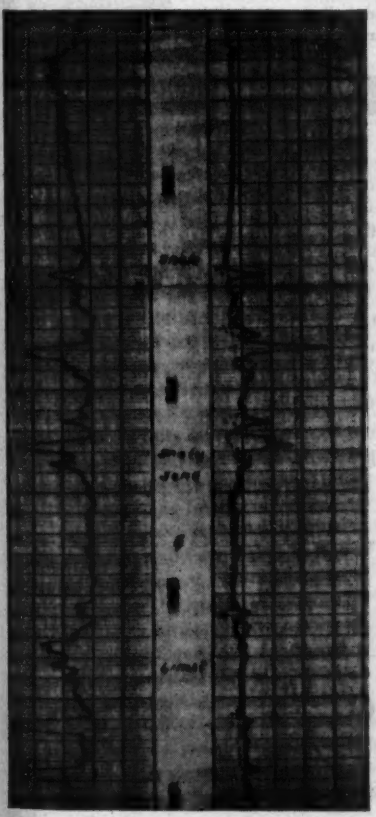
On February 16 of this year Texas Eastern Transmission Corp. filed an application with the Federal Power Commission asking for authority to further increase the capacity of our system to 508,000 M.c.f. per day. This will be accomplished by adding additional compressors at both the centrifugal and reciprocating stations throughout the system and will not require any looping or new stations. Upon the completion of this program, we would have a total of 107 centrifugal units on our system with a total connected horsepower of 165,750. The total horsepower on the system would be approximately 240,000 with reciprocating engines supplying the difference.

The electrical industry has been most helpful to us throughout the past year in working out the application of this new machine, and has assisted us at every opportunity to make this conversion a success. Severe power shortages have prevailed in many areas during the winter of 1947 and will continue throughout this year, but through interconnec-

tions of various electrical systems, the power companies have been able to provide the power required for this operation in spite of the fact that many of these companies had already sold or contracted the capacity that had been used for the operation of these stations during the war.

Facsimile Electric Logs by FM Radio

DALLAS.—This electric well log, the first ever to be transmitted by radio, was run off in a demonstration of facsimile transmission at the Twentieth Annual Conference of the Petroleum Industry Electrical Association meeting recently held here. Two facsimile machines manufactured by Automatic Electric Co. were used in the demonstration. One machine scanned the original log with a minute beam of light. Reflected light, varying with the blue and white image, was converted in a photoelectric cell to electric impulses. Amplified and broadcast on a regular FM voice channel, these impulses were picked up in a General Electric radio receiver, and in the receiving facsimile machine, were passed through electrolytic paper on which synchronous scanning reproduced the well log. Although the demonstration was confined to one room, the adaptation is possible over the normal ranges of FM oilfield networks, or by wire over even greater distances.



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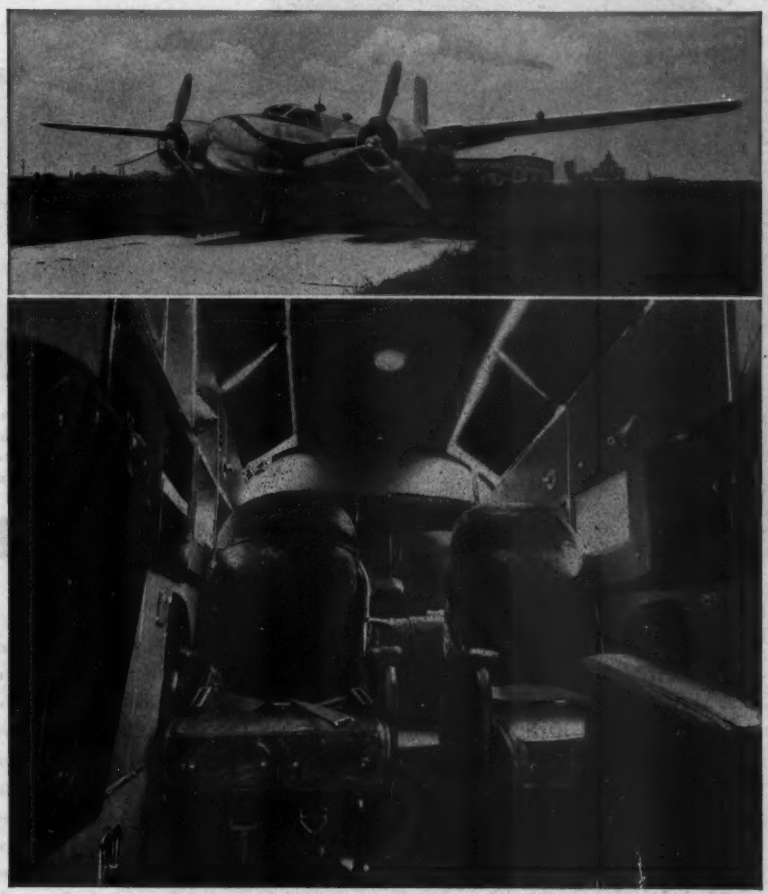
HUDSON ENGINEERING

Equips A-26 with Custom-Built "Chair Chutes"

● The Hudson Engineering Corp. of Houston, Texas, designer and builder of gas processing plants, believes it is just plain common sense to protect passengers and crew in every way possible. So they have equipped their converted A-26 with Irvin "Chair Chutes." They know that these Air Chutes* can be vitally important in many types of emergencies. Leading aircraft owners everywhere know this is a fact and are equipping their planes with Custom-Built "Chair Chutes." Why delay. Write for the facts today.



Interior of the beautifully-appointed Hudson Engineering transport showing Custom-Built "Chair Chutes" fitted into the backs of the seats. The chutes can be put on in a few seconds in an emergency. Write for circular illustrating and describing their use.

FEEL SAFER ...BE SAFER with Irvin Custom-Built "Chair Chutes"

IRVIN Air Chute The Life Preserver of the Air

There are now over 35,000 registered members of the Caterpillar Club. Should you qualify, please write us.

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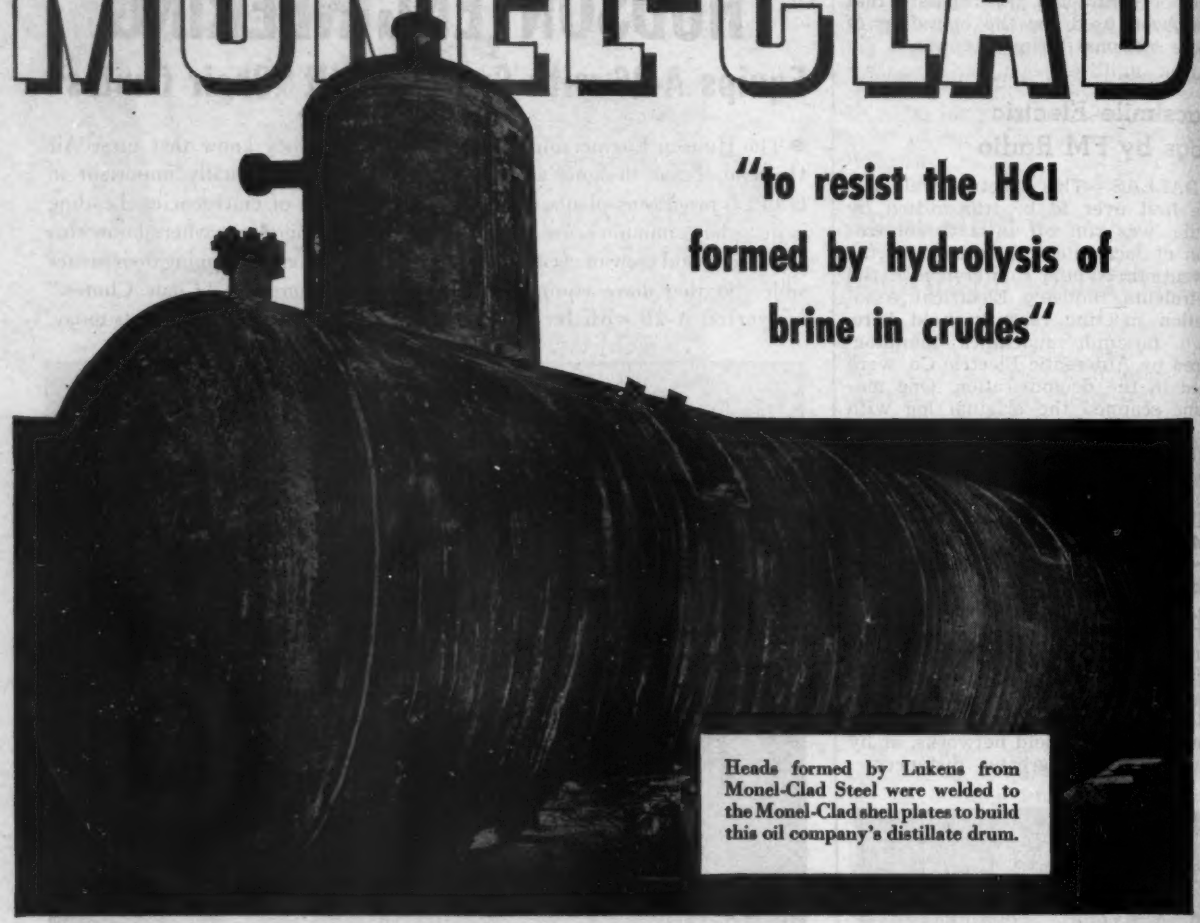
MONEL-CLAD

"to resist the HCl formed by hydrolysis of brine in crudes"



Heads formed by Lukens from Monel-Clad Steel were welded to the Monel-Clad shell plates to build this oil company's distillate drum.

Solid Monel's corrosion resistance at the lower cost of *clad* steel! Here's the story—

Monel was recommended for this drum for handling crude distillates at temperatures below 500° F., because it offers excellent resistance to the hydrochloric acid formed by hydrolysis of brine in the crudes. But Lukens Monel-Clad Steel —a 20% thickness of Monel permanently bonded to an ASME quality steel backing plate—provided that same protection at a lower cost.

Clad steel equipment in every part of the Petroleum Industry is proving that it pays to employ Lukens Clad Steels. They are supplied in claddings of from 5 to 50% of total plate thickness. Plate sizes run up to 178" wide or over 3" thick.

Lukens offers you the most complete range of clad steels available to industry—Nickel-Clad, Stainless-Clad, Inconel-Clad or Monel-Clad—to combat the corrosion encountered. Write for the new Bulletin No. 461 showing applications in the Petroleum Industry. Lukens Steel Company, 455 Lukens Building, Coatesville, Pennsylvania.

CLAD METAL STEEL

LUKENS

Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY

• • SPEED SCRAP TO THE MILLS TO MAKE MORE STEEL • •

PROGRESS IN METALS

by W. L. Nelson
Consulting Engineer

Flux-Coated Gas Rod For Cast Iron

DESIGNED specifically for all types of gray or alloy cast iron and to eliminate the uncertainties and delays of manual fluxing when welding stressed cast shapes, a new color-matching flux-coated torch welding rod known as "EutecRod 14 FC" has been announced by Eutectic Welding Alloys Corp., 40 Worth Street, New York. This rod develops a tensile strength of 48,000 psi. in the weld deposits, bonding at 950°-1,400° F., with a remelt temperature of 2,200° F. Its coefficient of expansion is the same as that of gray cast iron and its hardness is approximately 190 Brinell, producing welds that are fully machinable.

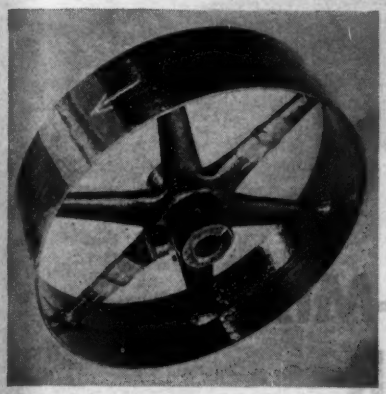


Fig. 1—Cast-iron pulley 16 in. in diameter (with 4-in. rim) welded in three highly stressed areas with no distortion or cracking, using new flux-coated EutecRod 14 FC, recently announced by Eutectic Welding Alloys Corp.

Fig. 1 is especially interesting for the number and character of welds in the stressed areas, where high heat rise accompanying ordinary torch rod applications could result in irreparable cracking and hardened areas. However, these welds were accomplished with an oxyacetylene flame, with a slight preheat of 200°, using a No. 5 tip, which was held at a distance of ⅜ in. from the flame cone to the surface of the metal. The well-known principle of flux coating, now available for cast-iron torch welds with the introduction of this new product, is said to make it possible to achieve fast, smooth welds of similar character quite easily, with very little fusion of base metal, and with correct fluxing automatically maintained at every point during the weld. All broken sections or cracks in this pulley were beveled to 75°-90°, and a forehand welding procedure was used to melt the flux and filler metal, after heating the welding area to a dull red. No special technique is required to apply the new flux-coated rod.

Relative Prices of Metals

THE major reason for the continued supremacy of ferrous metals and alloys is indicated by Fig. 1 (Waggaman & Gee, Chem. & Engineering News, Vol. 26, February 9, 1948, page 377). Iron ore is the cheapest of the ores, and although half of the final cost of metallic iron consists of manufacturing costs, the actual cost of manufacture is less than for other metals. The costs of ore processing and separated metal are as follows:

	Cost, per lb. of metal, dollars per lb.		
	Ore	Processing	Separated
Iron	0.005	0.005	0.01
Aluminum	0.007	0.143	0.15
Magnesium	0.020	0.185	0.205
Manganese	0.031	0.289	0.32
Chromium	0.052	0.838	0.89
Vanadium	0.490	2.31	2.80
Titanium	0.025	5.22	5.25
Zirconium	0.060	6.94	7.00

Vanadium ore is rare and expensive, but the cost of most metals consists primarily of processing costs.

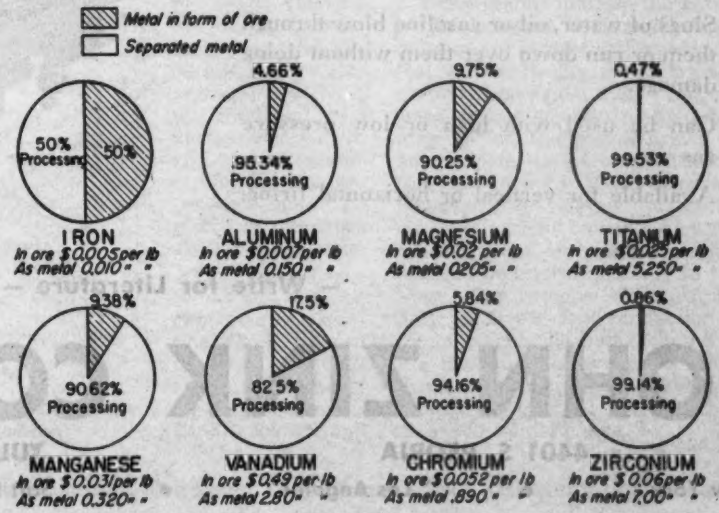


Fig. 1

Alloy Heavier Than Lead

A NEW alloy of tungsten, copper, and nickel, known as Hevimet, has been developed by General Electric Co., Pittsfield, Mass. The alloy possesses a density 50 per cent greater than lead and is applicable to the design and construction of moving parts requiring maximum inertia and minimum size.

Originally developed in response to demands for a material of high density for use on a gamma-ray screen, Hevimet is adaptable to the construction of balance weights for the elimination of vibration in crankshafts, modern air screws, centrifugal clutches, and other rotating parts. Combining great tensile strength with good machinability, the alloy is said to be highly resistant to atmospheric salt-water corrosion and easily plated with cadmium, chromium, or nickel. It can be silver soldered and brazed by standard methods.

A sintered material, Hevimet is made in a variety of nonporous sheets and blocks. Complex shapes may be built up from simple pressing by a special process of hydrogen welding. The average product has a density from 16.8 to 17 grams per cu. cm., a tensile strength of 85,000 to 118,000 psi., and a Rockwell hardness of 30 to 40 C scale.

Forging Terms or Operations

Fullering

Fullering is used to shape bar or similar stock by working between the ends. The trip hammer or helve hammer is used. The term "edging" applies to shaping of the stock at the end, and "swaging" refers to working of the surface.

JOHN ZINK BURNERS

VERTICAL TYPE BI-MIX FLOOR BURNER

Can't be beat for Gasoline Plant Boilers — practically all of the stationary oil field boilers in gasoline plants in The Mid-Continent area are fired with JOHN ZINK BURNERS.

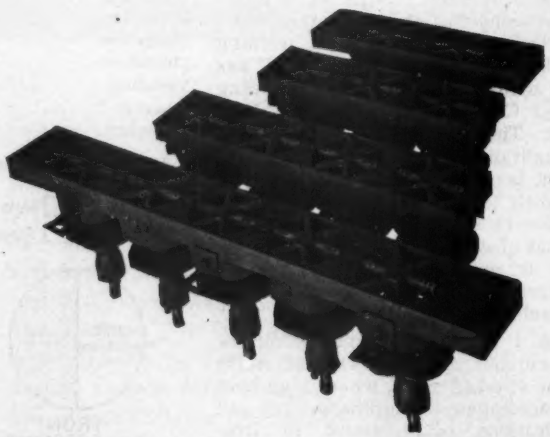
FEATURES —

Inexpensive to buy — easy to install. All in one piece. Burns with a short flame, without the use of small orifices, refinery gases, natural gas, oil vapors or a mixture of gases.

Slugs of water, oil or gasoline blow through them or run down over them without doing damage.

Can be used with high or low pressure gas . . .

Available for vertical or horizontal firing.



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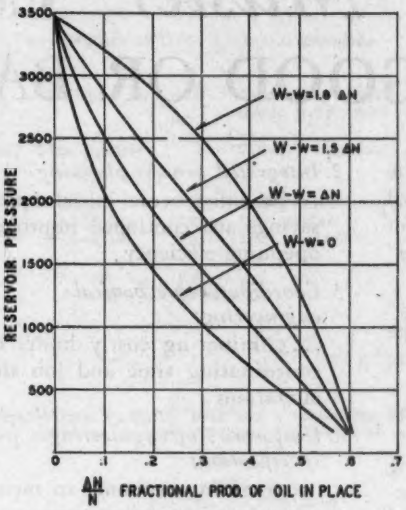
ENGINEERING fundamentals

Effect of Net Water Encroachment On Reservoir Pressure Decline

MAINTENANCE of reservoir pressure can be attained under continued withdrawal of production by the control of the net quantities of gas produced or by the control of the net water encroachment. The effect of produced gas in terms of net cumulative gas-oil ratio was outlined in a previous Engineering Fundamentals (No. 335). The present discussion will outline the variation of pressure decline under differing amounts of net water encroachment with an assumed constant net cumulative gas-oil ratio.

The material balance equation expresses the quantitative variations sought. This equation is written, after expressing the gas cap as being equivalent to zero, as (Engineering Fundamentals No. 334):

$$N\,(u - u_o) = \Delta N\,[u + (R_c - r_o)v] - (W - w) \quad (1)$$



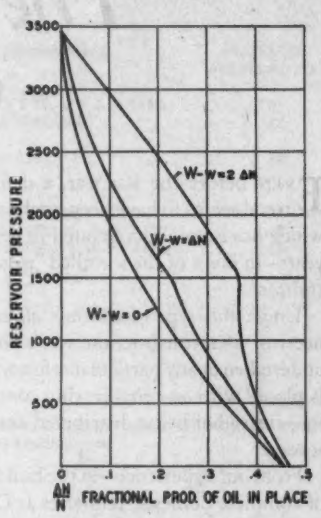


Fig. 2—(Left) Calculated effect of net water encroachment. (Net gas-oil ratio = 1½ times original gas in solution). Fig. 3—(Right) Calculated effect of net water encroachment. (Net gas-oil ratio = twice original gas in solution)

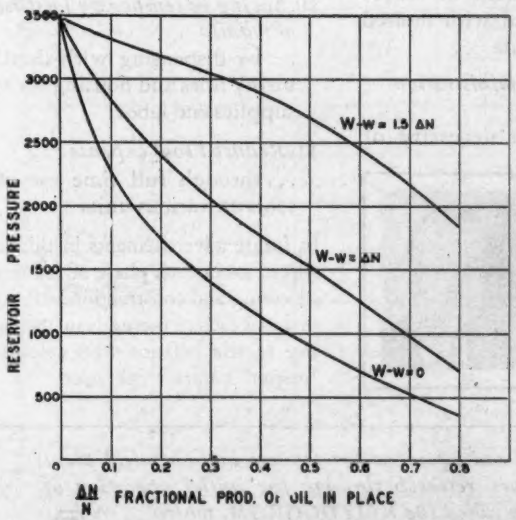


Fig. 1—Calculated effect of net water encroachment. (Net gas-oil ratio = original gas in solution)

The term (W — w) is termed the net water encroachment and is equal to water entering the pore space originally occupied by oil minus the water produced. ΔN/N is the fractional production desired and all quantities excepting R_c are dependent upon the reservoir pressure at any given time.

For convenience (W — w) will be expressed as a fraction f_w of the oil produced. For example, values of (W — w) chosen as 0.1 ΔN, 0.5 ΔN and ΔN mean that the net water encroachment is one-tenth as rapid as the withdrawal of oil, half as rapid as the withdrawal of oil, and equal to the withdrawal of oil. The equation then becomes after substitution:

$$\frac{\Delta N}{N} = \frac{u - u_o}{u + (R_c - r_o)\,v - f_w} \quad (2)$$

It is now possible to compute the fractional withdrawal ΔN/N accompanying a certain decline in pressure with definite values of R_c and (W — w) known. Graphs from calculations of this type are shown in Figs. 1, 2, and 3 for various water encroachment values and various gas-oil ratio values.

These graphs indicate the nature of the pressure decline for fixed pairs of gas control and water control values. In any producing reservoir these quantities are not fixed throughout entire field history. Hence, the graphs drawn do not indicate the path taken in actual production. They illustrate, however, the relative qualitative effect of various amounts of water encroachment on pressure decline and can be interpreted only in this sense. The graphs were carried only to 80 per cent production of oil in place, this being chosen as the maximum recovery the water drive mechanism would yield even though the pressure might still be at a substantial value.

Series by Dr. John C. Calhoun, Jr., Chairman, Petroleum Engineering School, University of Oklahoma

The "Master" Contract – GOOD OR BAD?

EVEN before the last war, a definite trend seems to have been established which has become accelerated in recent years—in favor of the so-called "master" contract.

Under this type of contract *all* engineering and construction work to be undertaken at any particular refinery site is placed with *one* engineering contractor—instead of being distributed among several.

From our experience—in the building of complete domestic refineries at Denver, Lake Charles, Salt Lake City and currently at East Chicago, Indiana, plus complete foreign installations made in Palestine and currently contracted for in Brazil, Canada, Argentina and the British Isles—there *are* definite and direct advantages in this method of operation which are probably the reason for the increasing number of "master" contracts being let.

For instance, the "master" type contract offers to the refiner—big or small,

1. ***Concentration of overall process responsibility***
   ... with consequent increase of efficiency of final plant and more profitable employment of refiner's own staff
2. ***Integrated process planning***
   ... providing actual initial capital savings and continued improved operating efficiency
3. ***Coordinated mechanical engineering***
   ... eliminating costly hours of coordinating time and job site alterations
4. ***Uniformity of engineering specifications***
   ... providing economy in maintenance and spare parts inventory
5. ***Centralized purchasing of materials and equipment***
   ... permits allotment of scarce materials in accord with desired completion schedule
6. ***Simplified field administration and accounting***
   ... removing the necessity of duplicate facilities by several contractors in the field and the concurrent extra work at home offices
7. ***Elimination of competition for local labor***
   ... expediting construction and insuring minimum labor costs
8. ***Uniform labor policy at job site***
   ... with resultant improvement of man-hour efficiency
9. ***Maximum economy in use of all labor at job site***
   ... through the flexible interchange of crafts from one unit to another
10. ***Saving in temporary facilities at job site***
    ... by dispensing with duplicate utility lines and housing for tools, supplies and labor
11. ***Reduced tool expense***
    ... through full time use of all tools on various units

by
Warren L. Smith
Vice President of The
M. W. Kellogg Co.

In future advertisements in this series, specialists in each phase of refinery engineering and construction will discuss in detail each of these advantages accruing to the refiner who selects the "master" contract operation.

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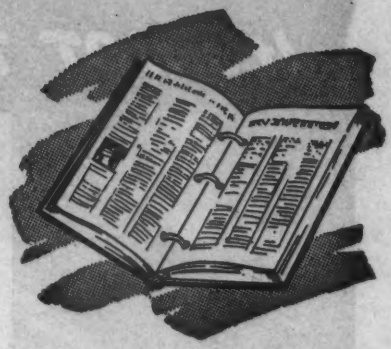
The Refiner's Notebook

A WEEKLY FEATURE OF THE OIL AND GAS JOURNAL



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$$t_m = \frac{PD}{2S} + C$$

t_m = minimum thickness, in.

P = internal minus external pressure, psia.

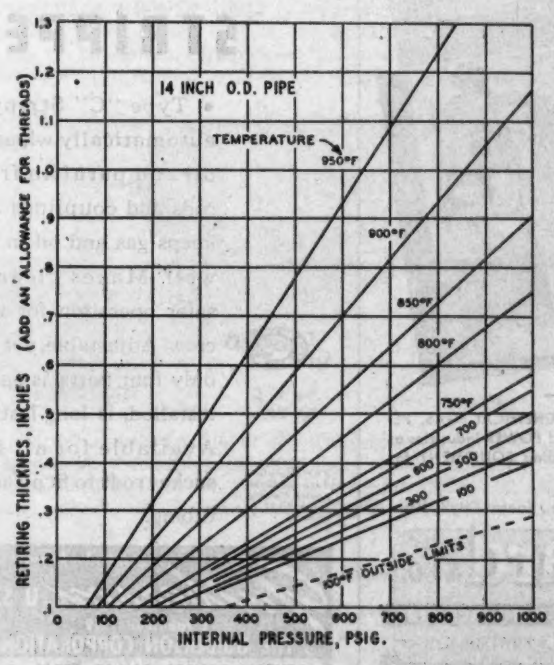
D = actual outside diameter, in.

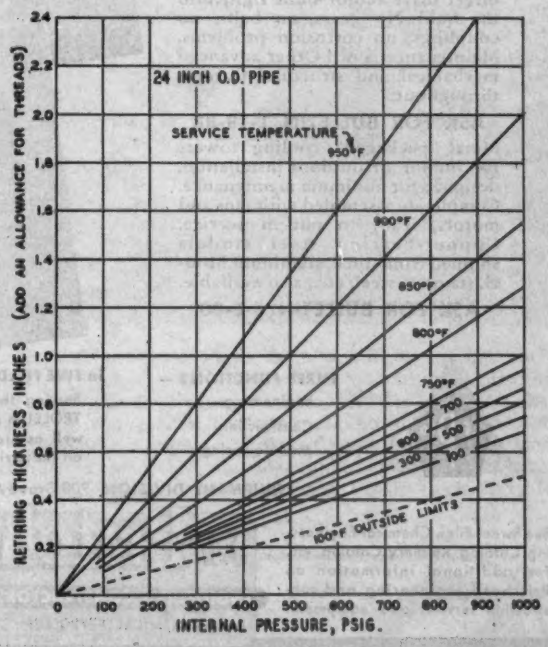
S = allowable metal stress, psi. (see tabulation of materials)

C = allowance for threading, welding, mechanical strength and/or corrosion

Values of C		Other materials	Specification	Multiplier for thickness
Welding	0.05	Grade A seamless	A.S.T.M.-106 A.P.I.-5L	1.0
		Grade B seamless	A.S.T.M.-106	.77
Pipe threads		Grade B seamless	A.P.I.-5L	.80
¼-in.	0.03	Grade C seamless	A.S.T.M.-106, A.P.I.-5L	.84
¼-⅜-in.	0.044	Lap welded	A.S.T.M.-53, A.P.I.-5L	1.00
½-¾-in.	0.057	Butt welded	A.S.T.M.-53, A.P.I.-5L	1.00
½-in.	0.07			
1-in. up	0.10			

Refer to Refiner's Notebook No. 122 (Inspection), April 15, 1948, and a correction of Table 2 which appeared May 13, 1948, for a discussion of A.S.A. Code for Refinery and Gasoline Plant Piping, the effect of temperature, etc.





No. 205 in a series by W. L. Nelson, professor of petroleum refinery engineering, University of Tulsa

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There is still time for the Equipment Division of J. F. Pritchard & Co. to repair and make mechanical improvements on your present cooling tower — *regardless of make.* Without any obligation, Pritchard Field Engineers will survey your tower and submit comprehensive recommendations for the rehabilitation of your structure and, if advisable, suggestions for the replacement of the mechanical fan drives—*on any make of tower.*

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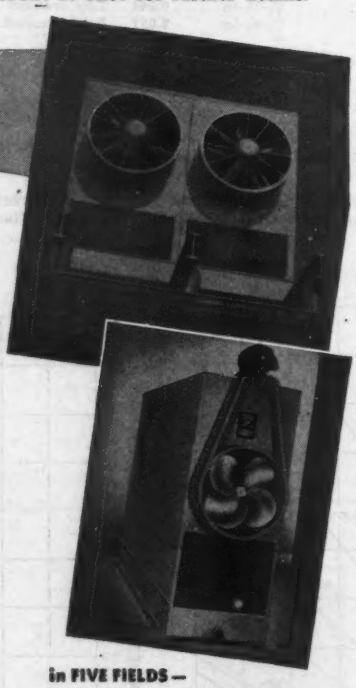
Small and Medium Capacity
INDUCED DRAFT
Towers Shipped from Stock



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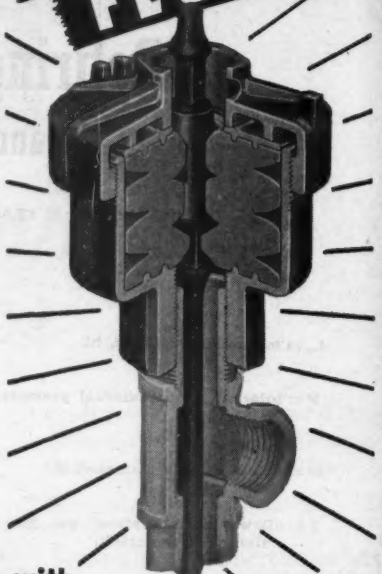

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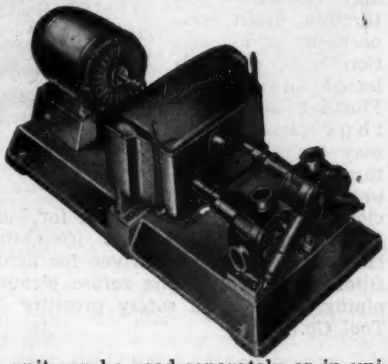
OIL AND GAS EQUIPMENT Digest

IT'S NEW ✓ CHECK IT

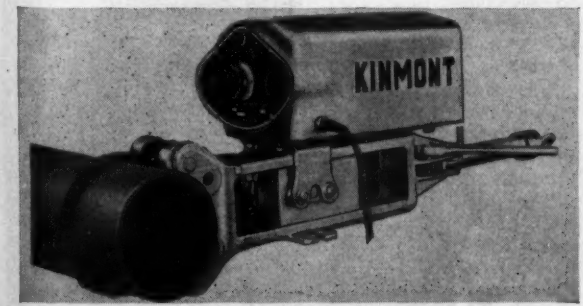
by John M. Spears

(1) NEW TWIN-UNIT PUMP is especially for petroleum bulk stations. It is designed to pump two similar petroleum products with speed, economy, and safety, and is Underwriter's approved for use in inside or outside locations. An important feature is that the unit can be used separately or in unison, each pump delivering 100 g.p.m. Pumps are weatherproof, dustproof, waterproof, and explosionproof. *Viking Pump Co.*



IT'S NEW ✓ CHECK IT

(2) UNIVERSAL POWER UNIT is a versatile power tool for turning pipe, round objects, or hexagonal objects requiring up to 400 lb. circumferential turning force at a surface speed of from 3 to 26 in. per minute. It is especially adaptable as a positioner for welding, cutting, fitting, grinding, threading, painting, and other similar operations. Unit operates on the chain tong principle, and weighing only 71 lb., is easily portable. A foot switch accessory is available to permit remote control. Drive chain is provided with patented quick action connecting links for rapid lengthening of the chain to accommodate work of larger diameter. For handling large tanks, adjustable roller fixtures can be utilized. By using this method, the full weight of the work is not imposed upon the power unit and objects weighing as much as 20,000 lb. can be handled. With pipe set on rollers, the unit will turn several hundred feet of pipe while a group of welders operate the entire length. *Kinmont Manufacturing Co., Inc.*



IT'S NEW ✓ CHECK IT

(3) NEW GASKET, for coupling glass or porcelain-lined pipe, features a special buffer ridge projecting inwardly from a solid rubber wall. Pipe ends, when joined, abut against this ridge, which cushions them from shock and prevents them from grinding against each other with the resultant cracking or chipping. Buffer ridge also serves to prevent a drop-off at this point. By matching the inside diameter of the pipe, the ridge provides both a tight seal and a complete lining which provides a smooth flow throughout the pipe system. New buffer gasket is supplied with Prosto-Lock flexible

The Oil and Gas Equipment Digest presents a review of what is new in equipment and trade literature . . . makes it possible for readers to obtain full information on every subject by use of convenient "Check It—Mail It" service card. This periodic feature of The Oil and Gas Journal will include all that is new in equipment . . . at a time when new products are being introduced, and existing products improved.

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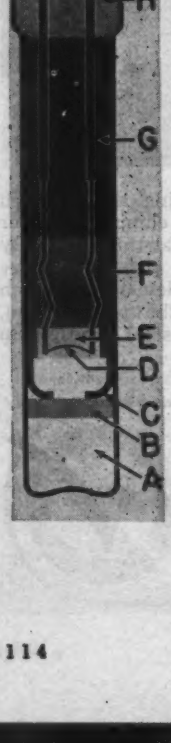
pipe couplings which are the wedge type and require no special wrenches for assembling. *Drinkwater, Inc.*

IT'S NEW CHECK IT

(4) NEW TUBING ELEVATOR is a single-bail elevator that can be used on either side. It is a faster, easier-operating elevator for pulling tubing, especially where gin poles and blitz rigs are used. It operates as smooth and fast as a rod elevator. Locking device is positive and safe, and can be operated from either the back or front of the elevator. Elevator has been tested to 200,000 lb. on an Olsen pulling machine without showing any signs of weakness. Can be furnished to take either 2-in., 2½-in., or 3-in. tubing. *J. P. Ratigan, Inc.*

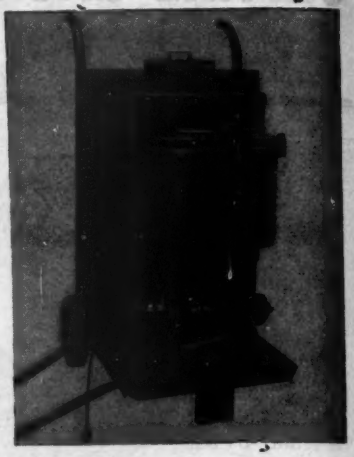
IT'S NEW CHECK IT



(5) NEW SEISMOGRAPH ELECTRIC BLASTING CAP detonates at less than one thousandth of a second when fired with as little as 2.5 amperes of current. Cap fires as much as five times faster than manufacturer's previous caps. It can be used with any standard recording instrument. There is no lag between rupture of the bridge wire and detonation of the charge. Its uniformity of firing gives assurance of excellent results. Cap is made in both No. 6 and No. 8 strengths and is supplied in both loop and spool packages. Special waterproof caps in No. 6 strength are available for deep shooting for water depths of over 100 ft. Caps are supplied with double cotton-covered 20-gage enameled copper wires in all standard lengths. Following is the key to the above cross section: A, base charge; B, initiator charge; C, cup washer; D, bridge wire; E, igniter charge; F, bridge plug; G, waterproofing; H, sulfur closure; J, leg wires. *Western Cartridge Co.*

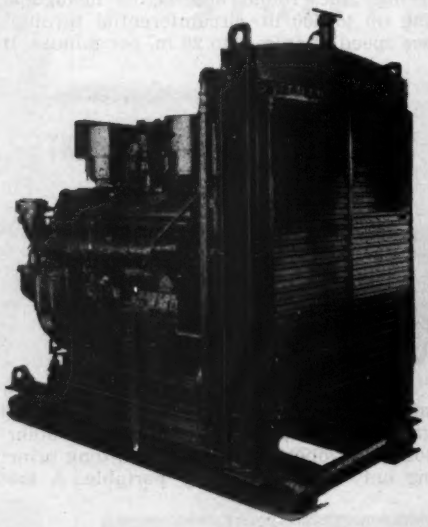
IT'S NEW CHECK IT

(6) PORTABLE OIL FLUSHER permits internal cleaning of machinery without disassembling. By means of a high-pressure nozzle jet, organic solvents, kerosine, or lubricating oil can be shot through the inspection or cleanout openings of housings around bearings, gears, or cranks. Thus it is possible to loosen dirt, sludge, or wear particles and force out water. Through a safety control device, flow may be reduced to a gentle flushing stream if desired. Residue may be drawn out through drain connections, or by suction hose, and collected in a filter. Flushing solvent is thus cleaned, and may be recirculated through the machine until the parts are clean. Unit consists of a tank for holding and carrying the flushing fluid to and from the machine to be cleaned; a pump and driver for actuating the fluid; a filter for collecting the refuse cleaned out; and hoses, piping, valves, and safety pressure control. *Fox River Tool Co.*



IT'S NEW CHECK IT

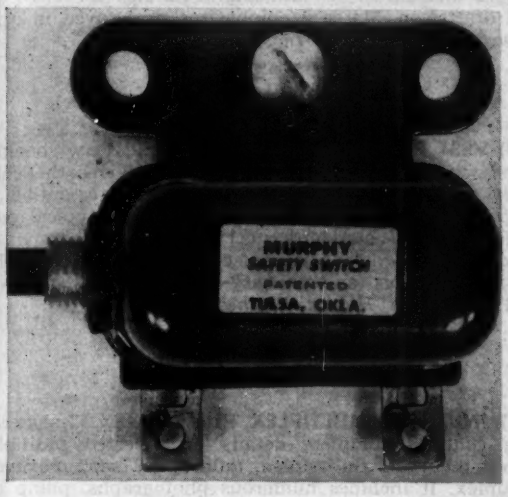
(7) RADIATOR SHUTTERS may be installed on any stationary engine, insuring oil-field operators of temperature control. Shutter automatically maintains a constant temperature within close limits of both oil and water,



saving fuel from 8 to 20 per cent and preventing cylinder-wall wear. Even though in constant operation these rugged shutters require only a minimum of attention. They may be ordered as special equipment on new engines or be installed on old engines. *Kysor Heater Co.*

IT'S NEW CHECK IT

(8) MAGNETIC SNAP SWITCH is a semiautomatic, positive, grounding device for ignition circuit of magneto-ignition engines. Its simple design consists of a beryllium-copper contact spring which latches over center on an armature. Current of primary windings on magneto is utilized to pull down armature and operate



switch. Application includes pipe-line pump installations where instant shutdown is required when pressure reaches critical high or low predetermined pressure. It may also be used on remote tank-car loading pumps which are required to be shut down by closing value at loading rack. *Frank W. Murphy, Manufacturer.*

IT'S NEW CHECK IT

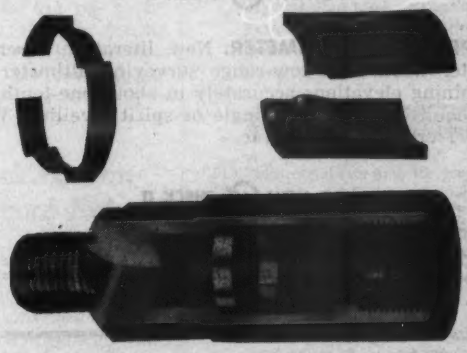
(9) ULTRASONIC MEASURING DEVICE automatically measures the wall thickness of metal, plastic, and glass parts where only one surface is accessible and also makes rapid, nondestructive tests to detect flaws and imperfections in these materials. It can measure the wall thickness of a long tube with less than 2 per cent error. In testing for flaws it detects thin voids and cracks that do not appear in an X-ray. Unit employs an electronic oscillator to generate electrical voltage, the frequency of which is varied throughout the tubing range of the oscillator. The point or points in this tuning range at which the part resonates are indicated. Since resonant-frequency and thickness of the part are related for any given material, it is possible to calibrate the unit to read thicknesses directly. Thickness of tubes and flat parts between 0.015 and 0.300-in. may be read directly, and up to several inches may be read indirectly. *Photocon Research Products.*

IT'S NEW CHECK IT

(10) SUCKER ROD GRIP AND HANGER, designed especially for use in portable derricks, are equally efficient in regular, standard derricks. Sucker-rod grip is made in one size that will handle all field sizes of rods, eliminating more than one size grip in the derrick. As the rods are pulled, the handle in the grip forces the shoe against the rod which then is pressed firmly against the body of the grip. Four friction surfaces against the rod minimize the possibility of rod slippage. Sucker rod hanger is rectangular in shape. It permits placement of rod strings in perfect rows outside of the portable derrick. It allows more rods to be accessible to the men in the derrick, and at the same time leaves ample room for pulling tubing or other necessary operations. *H.D.G., Inc.*

IT'S NEW CHECK IT

(11) NEW CAGE for oil-well pumps employs long lasting, replaceable, resilient synthetic-rubber ball guides. Guides are not appreciably affected by oil, have high abrasive resistance, and are not subject to the beating



or peening action of the spinning ball. In addition to the improved cage life obtained, there is generally a marked improvement in the ball and seat life, because of the protection afforded the ball. *John N. Martin, Mfr.*

IT'S NEW CHECK IT

TRADE LITERATURE

(12) INDUSTRIAL PUMPS. A 36-page bulletin presents the most recent developments in a line of horizontal and vertical-shaft centrifugal pumps for abusive process work. Two horizontal shaft and three vertical shaft types are illustrated and fully described. *Nagle Pumps.*

IT'S NEW ✓ CHECK IT

(13) CHEMICAL PRODUCTS. Approximately 100 chemicals are described and classified by family groups. Family classifications into which the products are divided are cellulose, synthetic resins, rosin, terpene solvents and chemicals, chlorinated products, dairy products, and explosives and sporting powders. *Hercules Powder Co.*

IT'S NEW ✓ CHECK IT

(14) OIL-INDUSTRY HYDRAULIC CONTROLS. New eight-page bulletin describes a variety of oil-industry equipment which uses hydraulic pumps and controls. Field illustrations are included. *Vickers, Inc.*.

IT'S NEW ✓ CHECK IT

(15) CORROSION CONTROL. Causes and control of contamination in the petroleum industry are thoroughly covered in two new descriptive bulletins. How to prevent corrosion of drill stems, sucker rods, pumps, tubing, casing, perco sweetening systems, acid-sludge tanks, buildings, and dozens of other surfaces are described. *Amercoat Division, American Pipe & Construction Co.*

IT'S NEW ✓ CHECK IT

(16) ROLLER - CHAIN IDENTIFICATION CHART. A roller-chain identification wall chart for use by drilling-rig operators has full-size scale drawings of standard and heavy series single-strand and multiple-width roller chains. By holding a link or section of roller chain against the chart, or by measurements, its exact size can readily be determined and ordering made considerably easier. *Baldwin-Duckworth Division, Chain Belt Co.*

IT'S NEW ✓ CHECK IT

(17) PRECISION ALTIMETER. New literature describes altimeter which is a low-range surveying altimeter for determining elevations accurately in about one-tenth the time required by vertical angle or spirit levelling. *Wallace & Tiernan Products, Inc.*

IT'S NEW ✓ CHECK IT

(18) HEAT INSULATING BLOCK for temperatures up to 1,200° F. is described in new four-page folder. Properties and advantages given. *American Structural Products Co.*

IT'S NEW ✓ CHECK IT

(19) DRAFTING TEMPLATES. New two-color folder describes and illustrates drafting templates for engineers and draftsmen. Material emphasizes time saved in using these sets. *RapiDesign, Inc.*

IT'S NEW ✓ CHECK IT

(20) VEST POCKET WELDERS' GUIDE. New booklet, filled with useful welding information, gives the characteristics of various welding arcs, four essentials of proper welding procedures, types of joints, typical positions, chart of standard steel shapes, photographs of good and bad welds, causes of common welding troubles, welding symbols, and an easy-to-use table of "how-to-find" formulas. *Hobart Brothers Co.*

IT'S NEW ✓ CHECK IT

(21) INVERTED MULTIPLEX PUMPS. New 12-page catalog contains complete details on inverted multiplex pumps including the triplex, quintuplex, septuplex, and nonuplex. It includes numerous photographs, pump dimensions drawings, and easy-to-read pump selection charts for selecting the type and size pump required for varying operations. *Aldrich Pump Co.*

IT'S NEW ✓ CHECK IT

(22) HEAT TRANSFER PRODUCTS. New general catalog graphically pictures and describes a complete range of heat transfer products. Included are: convectors, unit heaters, air-conditioning equipment, radiators, heat exchangers, jacket-water coolers, large-capacity and standard-size cooling and condensing units, and specialized products. *Young Radiator Co.*

IT'S NEW ✓ CHECK IT

(23) FULL-VIEW ROTAMETERS. New catalog covers manufacturer's full line of rotameters for flow-rate measurement and control, including the "Full-View" rotameter with safety shielding for normal pressures and temperatures, "Stain-Met" armored rotameter for high pressures and temperatures, and the "Inductronic" rotameter for remote record, automatic control, or totalization of flow rates. *Brooks Rotameter Co.*

IT'S NEW ✓ CHECK IT

(24) AIRLINE OIL PURIFIERS. New four-color bulletin describes and illustrates an airline oil purifier for complete re-refining of lubricating oils used in diesel engines, gas engines, automobiles, trucks, and many types of industrial oils. A description of the process is given in a four-color drawing. *Hilliard Corp.*

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REFINING

Work Is Progessing on Corpus Chemical Plant

CORPUS CHRISTI. — Construction work is now well advanced on a petrochemical plant being built in the Corpus Christi industrial bay area by a new company, Stanton Chemicals, Inc.

Initial production from the first operating units is scheduled in late fall of this year. Plant output will consist in a large part of aromatic-type hydrocarbon compounds and derivatives.

Head of the new organization is Robert E. Stanton, Denver consulting engineer, who has been identified with various refining and petrochemical projects in the Rocky Mountain and Mid-Continent areas. He formerly was in an advisory capacity for the war-production program, assisting in work on synthetic rubber, organic chemicals, and high-octane motor fuels.

The present plant installation being built at Corpus Christi will have a nominal capacity of 50 tons of finished products daily, and provisions have been made to increase the production total to about 200 tons within the first year of operation after certain process variables have been determined. Future plans of the company contemplates the construction of at least one additional plant in the Rocky Mountain region.

Production will include benzol, toluol, xylol, naphthalene, anthracene, anthraquinone, and phthalic anhydride. An extensive list of halogenated, nitrated, and oxidized hydrocarbon compounds also is planned for manufacture.

The program of Stanton Chemicals embraces both manufacture and distribution of a variety of organic chemicals and specialty products which are derived from petroleum hydrocarbons. Features of the new plant include use of special conversion processes and methods of catalytic treatment which Stanton said are exclusive developments of the company's engineering and research staff.

Kellogg Announces New Pipe-Bending Process

After 2 years of research and development M. W. Kellogg Co. has perfected a pipe-bending process and apparatus which can handle pipe diameters up to 100 in., it was announced recently by Alex Kidd, vice president of the Kellogg company.

The method bends pipe in the hot state under hydraulic pressure and is adaptable to small and large diameters, to thin and thick-walled pipe, and to short or long-radius bends. It is currently being employed to fabricate 50-in. pipe bends, the largest one-piece bend ever made, for the carrier lines of large oil-refining units.

The new pipe-bending process may be profitably used wherever a change in direction of a pipe line over 34 in. in diameter is required, company officials state. Bends made by this machine are passing the strictest production tests and are found to be of higher quality than bends fabricated by the usual welded segment procedure, company engineers said, thus eliminating any tendency toward "stress corrosion."

Rust Engineering Named To Build Socony Units

Socony-Vacuum Oil Co., Inc., has authorized Rust Engineering Co., Pittsburgh, Pa., to act as engineer-constructor for units to produce ethylene and aromatics by Socony's Thermofor Pyrolytic Cracking process, it was announced recently by Rust Engineering officials.

Socony's new process, developed primarily for ethylene manufacture, but suitable also for the production of aromatic compounds, employs a moving bed of noncatalytic refractory particles as a heat transfer medium in direct contact with the oil to be cracked. Elimination of the coking difficulties encountered in conventional tube cracking permits operating the T. P. C. process with low-grade liquid petroleum oils.

Tide Water Cracking Unit Has 610-Day Record Run

The fluid catalytic cracking plant of Tide Water Associated Oil Co. at Avon, Calif., shut down last month for repairs and maintenance after establishing a record breaking run of 610 days of continuous operation. The new record is reported to be 48 days more than the previous longest run of 562 days established by Cities Service Refining Corp. at Lake Charles, La.

This is the third turnaround of the Avon unit which was erected in

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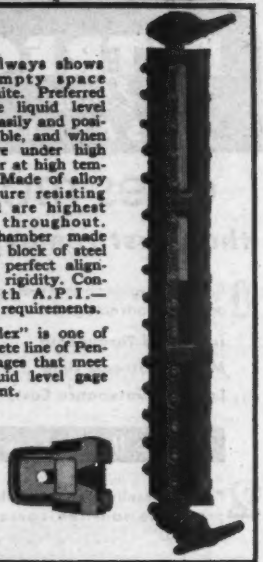

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1944. During the time that it has been in operation over 21,000,000 bbl. of heavy waxy vacuum flashed distillates have been converted into petroleum products. Installation of a new cellular stripping section is expected to further improve output of the next run.

Since October 11, 1946, when this run was started, about 11,000,000 bbl. of fresh feed as heavy waxy distillates of about 23° A.P.I. gravity were charged to the unit at an average daily charge rate of approximately 18,000 bbl.

Mid-Continent Refinery Is Nearing Completion

Reports on the construction of the 15,000 bbl. per day catalytic cracking unit in the West Tulsa refinery of Mid-Continent Petroleum Corp. indicate the project is nearing final stages of completion. Completion of the job, which is being erected by M. W. Kellogg Co., is scheduled for October this year.

Ratings on the refinery's major processes now operating show respective topping and thermal cracking capacties of 45,000 and 17,000 bbl. per day. Construction of the new catalytic unit was started early in September last year.

Gulf Makes New Oil for Light Aircraft Engines

A new detergent-dispersant oil formulated to maintain maximum engine cleanliness and designed especially for horizontal engines in light aircraft to be available by mid-summer, has been announced by Gulf Oil Corp.

Six years of research and over 100,000 hours of field testing by more than 100 operators has gone into perfecting the new oil, company officials said.

Indiana Standard Buys Jones & Laughlin Land

Standard Oil Co. (Ind.) has purchased approximately 960 acres comprising the former Jones & Laughlin Steel Corp. property in Hammond, Ind. Standard officials said that the property will be used for future expansion but that no specific plans have been made yet.

The tract is south of the new Standard research laboratory and adjacent to the company's Whiting, Ind., refinery.

Special Bibliographies

A special bibliography of 4 pages of the Fischer-Tropsch Process is included in the 45 special bibliographies now being offered free of charge from the Office of Technical Services, Department of Commerce, Washington.

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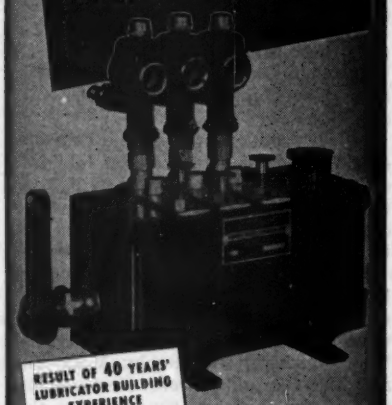

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PIPE LINES

Magnolia Dedicates 650-Mile, 20-In. Line

PATOKA, Ill.—Magnolia Pipe Line Co. conducted ceremonies here July 10 officially opening its 650-mile, 20-in., crude-oil pipe line from Corsicana, Tex., to Patoka, Ill. This is the longest single crude-oil trunk line constructed since the war.

Completion of the line brings Magnolia's crude-oil trunk, gathering, and products lines to 8,670 miles, according to L. H. True, vice president and manager of Magnolia Pipe Line Co., who was master of ceremonies for the occasion. J. L. Latimer, president, Magnolia Petroleum Co. and Magnolia Pipe Line Co., mentioned that the 20-in. project represents the culmination of plans considered during the past 10 years for linking together the northern and southern pipe-line systems of the company.

Present throughput with existing stations operating at 700 psi. is approximately 100,000 bbl. From the Patoka junction connection with Magnolia's 10-in. Midland system, shipments are diverted westward to East St. Louis and eastward to Lima, Ohio. Temporarily, shipments will be handled for Texas Co. interests via Salem to Texas Empire connections for delivery in Chicago, pending the completion of the Jal-Cushing and the Ozark systems, with extension to Salem. Prior to completion of Magnolia's line to Patoka, Sinclair Refining Co. was shipping approximately 60,000 bbl. daily for Magnolia to the St. Louis area.

Fayette B. Dow, general council, National Petroleum Association and Western Refiners Association, pointed out that this was "a project with which Washington had nothing to do."

In addressing the guests, including government officials, pipe-line executives, contractors, and suppliers, Col. J. Monroe Johnson, director of the Office of Defense Transportation and member of the Interstate Commerce Commission, said:

"I have become convinced that the people of the United States neither understand nor appreciate our transportation. This lack of knowledge operates to the detriment of our economic welfare, for public opinion rules the United States. Once public opinion is informed of the vital importance of our transportation, our transportation ills and difficulties will disappear.

"The United States with less than 6 per cent of the world's population and less than 6 per cent of the landed area, too, has 30 per cent of the total railroad mileage of the world. It has

Magnolia Pipe Line Co. lowering 20-in. pipe in the Mississippi River for the 650-mile Corsicana-Patoka crude-oil line officially opened at ceremonies July 10. When the picture was taken, work was being temporarily halted while an extra winch pontoon boat was brought up to aid in supporting the line

CRC

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more automobiles and trucks and civil airplanes than the rest of the world combined and practically all the pipe-line mileage. In short, it has more transportation than the rest of the world."

In concluding his talk, Colonel Johnson said that transportation preparation and rearmament are identical and that we have learned in the last 3 years that the transportation burdens of peace are as difficult and voluminous as those of war, and, if transportation is encouraged and made able to meet the burdens of peace, it can and will meet the burdens of war no matter what they may be. He maintained that "this pipe line is a momentous and outstanding stride in that direction for peace and, if we must, for war."

Tennessee Gas Awards 210-Mile Line Contracts

HOUSTON.—H. C. Price Construction Co., Bartlesville, Okla., and Bechtel Corp. of California have received contracts from Tennessee Gas Transmission Co. to build 210 miles of the company's second-line program in Texas and Louisiana.

The 30 and 31-in. pipe to be used was obtained last week in a trade with Trans-Arabian Pipe Line Co. whose Middle East pipe-line project has been held up by failure of the Government to grant additional pipe-export licenses.

The 210-mile section is between El Campo, Tex., and Natchitoches, La. J. P. Bristow, vice president in charge of operations for Tennessee Gas, said construction will start simultaneously west from Natchitoches and east from El Campo. Work is to start about August 1 and be completed this year. The first shipment of pipe for the project is to arrive at Beaumont, Tex., about July 20 from California. Tennessee Gas will repay Trans-Arabian with pipe from its deliveries scheduled later in the year.

Wichita Falls Terminal Receives First Shipments

WICHITA FALLS.—Shell Oil Co., Inc., and The Texas Co.'s enlarged tank farm and new railroad tank-car loading facilities began receiving large volumes of crude late last week, when pipe line connections were completed from Midland, Tex.

The 22-in. pipe line is a part of the Jal, N. M.-Cushing, Okla., pipeline system, originating at Jal.

Contracts will be let soon for the 24-in. line to Cushing, Okla. The system is scheduled to be completed and capable of moving 144,000 bbl. daily of Permian Basin and North Texas oil to the Oklahoma terminal late this year.

The tank farm is located on the old Petrolia road and now has five tanks

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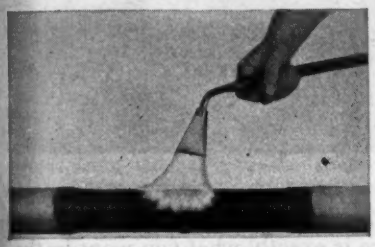
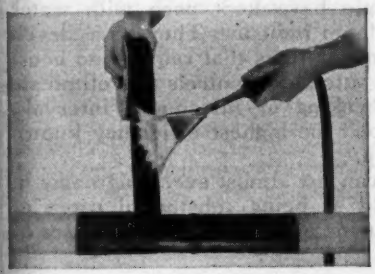
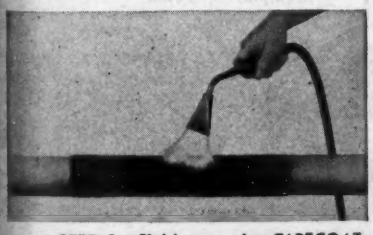
A practical, protective coating in handy tape form, TAPECOAT is easy to apply on pipe joints to give protection equivalent to the mill or machine coating on the pipe. It's clean—no dirt, no mess. Saves time and labor. Economical. Here's all you do:



STEP 1—Remove kraft paper on mill or machine coating back far enough to start one spiral wrapping of TAPECOAT over mill coating. Clean and dry bare pipe with torch as shown.



STEP 2—Start wrapping TAPECOAT where kraft paper has been removed. Flash flame of torch lightly on TAPECOAT to bleed its coating. Secure double thickness of TAPECOAT by overlapping slightly more than half the width of the tape.



STEP 3—Finish wrapping TAPECOAT. When wrapping is completed, flash the torch flame over entire TAPECOATED section to bleed coating to a shiny surface.

Write for complete details

The TAPECOAT Company
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OIL PIPELINES GAS PIPELINES GASOLINE PIPELINES WATER PIPELINES

completed and will eventually have 11 of the 122,700-bbl. capacity, and two of 78,400-bbl. capacity. Five of the tanks will be owned by the Texas Pipe Line Co. and the remainder will be owned jointly by other companies participating in the system.

Part of the oil coming from West Texas will be routed through another carrier to Dallas, it was said. However, most of the oil is expected to load out from the new racks under construction along the Katy tracks east of Wichita Falls, where loading capacity will be 400 tank cars daily.

Imperial Seeks Pipe for 16-In., 500-Mile Line

CALGARY, Alta.—In Calgary recently, H. H. Hewetson, president of Imperial Oil, Ltd., announced that the company is negotiating for 80,000 tons of steel for the construction of 500 miles of 16-in. line from Leduc field to Moose Jaw and Regina. The line is expected to cost around $35,000,000.

Official date of the opening of the new Imperial refinery at East Edmonton was announced for July 17, when processing of crude oil from Leduc field will begin. The refinery is expected to be in complete operation by the end of 1948.

Hewetson indicated that, with projects for marketing surplus Alberta gas to Winnipeg and the Pacific Coast definitely under way, his company is more interested in crude oil than in synthesizing natural gas into gasoline.

FPC Approves New Lines In Alabama, Mississippi

The Federal Power Commission has approved with minor modifications the presiding examiner's decision authorizing Alabama-Tennessee Natural Gas Co. to construct pipe-line facilities to serve northern Alabama and Mississippi markets.

The proposed project, estimated at $2,900,000, includes a 10¾-in. line from a point off the line of Tennessee Gas Transmission Co. near Selmer, Tenn., to Tuscumbia, Ala., a distance of about 75 miles; from Tuscumbia a 6⅝-in. line to extend 61 miles to Huntsville, Ala.; and laterals to serve other Mississippi and Alabama communities.

A principal condition of the recent order is one requiring the company to submit a tariff, including rates, charges, classifications, practices, services, rules, regulations and contracts for the transportation and sale of natural gas, satisfactory to the commission at least 6 months before commencing the operation of the project. Another condition is that construction be started within a year.

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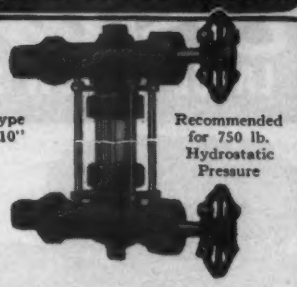

Steel construction throughout with stainless steel interior trim. Automatic shut-off is positive and instantaneous; stainless steel balls shut off the flow of liquid when glass breaks. Heavy duty stuffing boxes, union connections, offset construction facilitate cleaning and simplify glass replacement. Conform with A.P.I.—A.S.M.E. requirements.
This is one of the complete line of Penberthy gages that meet every liquid level gage requirement.

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HYDRATROL Lathes

LARGE HOLLOW SPINDLE TYPE

32" HEAVY DUTY LATHE
WITH 13" HOLE IN SPINDLE

"Its Precision Machining Satisfies Our Closest Tolerance Requirements"

...SUPERIOR TOOL CO.

THE SUPERIOR OIL TOOL CO., Santa Fe Springs, Calif., recently wrote us: "Since its installation, 2½ years ago, our 27" Hydratrol Lathe has been operating 2 shifts per day, 6 days a week, cutting tapered tool joints in Drill Collars.

"These Drill Collars are 40 ft. long and 4½ to 10" in diameter. Frequently as many as 6 are screwed together to run directly above the drilling bit in a drill pipe string; therefore, accurately machined joints are a 'must'.

"Many of the Oil Companies maintain their own joint inspection departments, equipped with precision instruments to check lead, taper and fit, to insure against failure in operation and costly fishing jobs. We have been able to satisfy their closest tolerance requirements on tool joints and have an increasing clientele as a result."

5 Sizes—18" to 36". Also Standard Hydratrol Lathes (Heavy Duty), Sizes 16" to 36"

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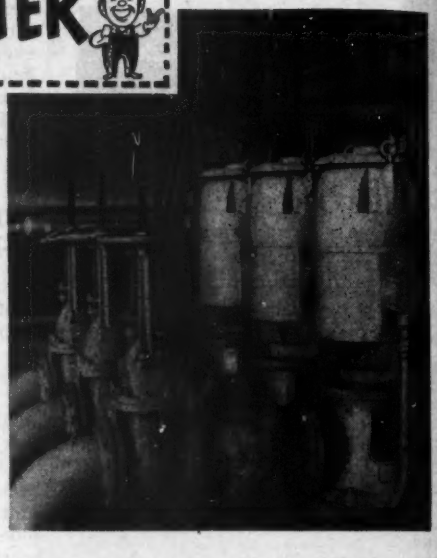

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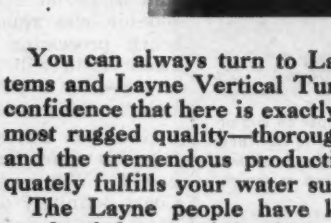
Happily, Layne can list almost every big name in the petroleum field as being substantial users of Layne water producing equipment for all phases of their operations.



For more information of a general nature, or for specific facts to fulfill your needs, address Layne & Bowler, Inc., General Offices, Memphis 8, Tenn.

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NATURAL GAS

Northern Natural Seeks Additional Facilities

Northern Natural Gas Co., Omaha, Neb., has requested Federal Power Commission authorization to construct facilities to increase delivery capacity of the company's system by 40,000,000 cu. ft. daily. This along with other additions under construction would bring the total capacity of the company's system to 465,000,000 cu. ft. daily.

Cost of the proposed facilities has been estimated at $4,008,000 and includes compressor units with an aggregate of 8,900 hp. at five existing stations, 28 miles of 24-in. pipe line, and 17 miles of 20-in. line. They would be built along the company's existing pipe-line system which extends from the gas fields of Kansas, Oklahoma, and Texas to the Twin-City area of Minneapolis and St. Paul. Construction would be scheduled to start in the spring of 1949 and be completed in November of 1949.

Canadian Gas Association Names New Officers

The Canadian Gas Association concluded its forty-first annual convention July 3 at Jasper, Alta., with a program which attracted a number of prominent gas-industry men from the United States as well as delegates from all parts of Canada.

Among the important papers dealing with natural gas and petroleum were "The Gas Situation in Alberta," by H. R. Milner, president of Canadian Western Natural Gas Co., Ltd., Calgary, Alta., and "Manufacture of Oil Gases for Fuel," by Kenneth W. Stookey, president of Gas Machinery Co., Cleveland, Ohio.

Officers elected at the Jasper meeting were: president, Alexander MacKenzie, General Steel Wares, Ltd., Toronto; first vice president, C. M. Seiger, United Gas & Fuel Co., Hamilton; second vice president, Hugh G. Smith, Consumers Gas Co., Toronto; executive secretary and treasurer, George A. Allen, gas survey engineer, Toronto.

Members of the executive committee are F. A. Brownie, Canadian Western Natural Gas Co., Ltd., Calgary; K. L. Dawson, Nova Scotia Light & Power Co., Ltd., Halifax; P. W. Geldard, Consumers Gas Co., Toronto; Alan H. Harris, Jr., Winnipeg Electric Co., Winnipeg; Carl H. Lutz, Dominion Natural Gas Co., Ltd., Dunnville, Ont.; W. J. Pead, Jr., Quebec Hydro-Electric Commission, Montreal; R. M. Perkins, Windsor Gas Co., Windsor; E. H. Bohrer, British Columbia Electric Co., Ltd., Vancouver; William Vickers, Public Utilities Commission, Kitchener, Ontario; Thomas Weir, Union Gas Co. of Canada, Ltd., Chatham; J. M. Moffat, Moffats, Ltd., Weston, Ontario; S. G. Green, Canadian Meter Co., Ltd., Hamilton.

The 1949 convention is to be held at Bigwin Inn, Lake of Bays, Ontario, June 16, 17, 18, and 19, 1949.

Natural Gas Sales for May Are Up 10 Per Cent

Natural-Gas sales of the gas-utility industry for May totaled 2,204,179,000 therms, a gain of 10.3 per cent over the same month a year ago, according to a report of the American Gas Association. For the 12-month period ended May 31, 1948, natural-gas sales were 26,562,677,000 therms, up 10 per cent over the previous period.

Sales of mixed gas for May amounted to 84,176,000 therms, a decline of 34.6 per cent from the same month last year. For the 12-month period sales of mixed gas declined 15.3 per cent from the previous year.

Manufactured-gas sales for May amounted to 182,003,000 therms, a decline of 1.6 per cent under May of last year. For the 12-month period ended May 31, 1948, sales gained 3.2 per cent over those of the previous 12-month period.

Home Study Courses in Gas Industry to Be Given

Three home-study training courses are scheduled to be offered to members of the industry by the Institute of Gas Technology, affiliated with Illinois Institute of Technology at Chicago. The courses will deal with manufactured gas, natural-gas technology and transmission, and gas transmission and utilization.

Texts are being prepared and the courses will be open to students as soon as these texts are printed and available. The courses are designed to hasten the acquaintance of young engineers with the industry; to permit more experienced men to brush up on work previously carried on as well as to increase their information in their chosen fields; and for non-technical personnel to increase their understanding of the operations of their companies.

Temporary Authorization Given Ohio Fuel Project

Temporary authorization has been granted to Ohio Fuel Gas Co., Columbus, Ohio, by the Federal Power Commission to construct additional natural-gas pipe-line facilities to increase delivery capacity to Toledo, Fremont, and adjoining areas. Cost of the project has been estimated at $3,082,000.

Proposed facilities include approximtely 61 miles of 20-in. pipe line between Pavonia compressor station in Richland County, Ohio, and Toledo. The proposed line would replace existing pipe lines of smaller diameter so as to provide a continuous 20-in. line between the two points.

Natural Gasoline

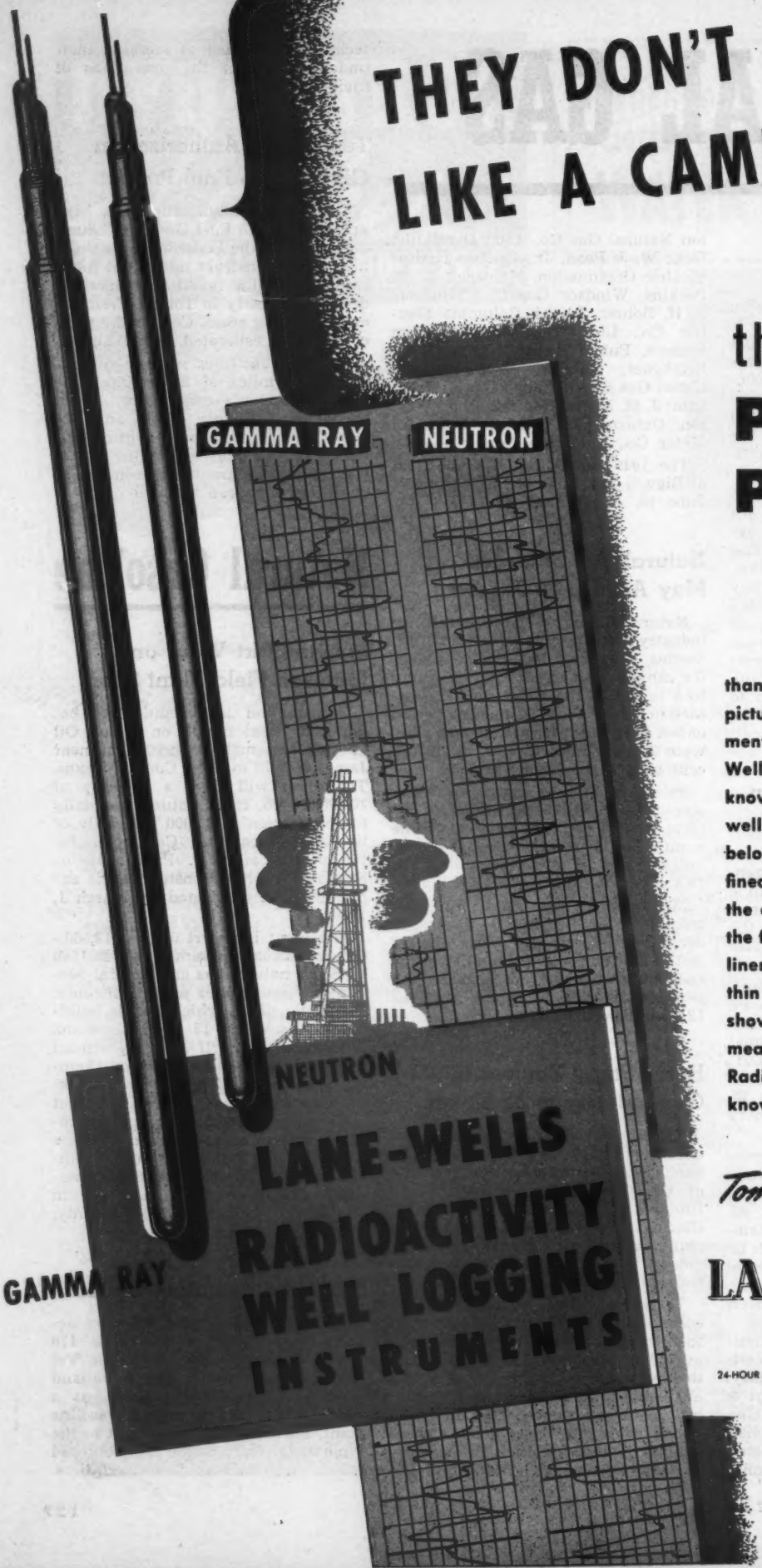
Sun to Start Work on Jameson Field Plant Soon

Construction is scheduled to begin early next month on a Sun Oil Co. pressure-maintenance plant near Jameson field in Coke County, Texas. The plant will have a capacity of 10,000,000 cu. ft. of natural gas daily for production of 30,000 gal. daily of liquid hydrocarbons. Contractor for the project is J. F. Pritchard Co., Kansas City, Mo. Construction is expected to be completed by March 1, 1949.

The plant is a part of the $12,000,000 expansion program begun in 1946 by Sun's natural-gas and natural-gasoline division. Other projects include: The Delhi plant, which Sun is building for itself and 15 other Louisiana producers, and will have its official opening soon; a plant in Starr County, near Sun field in Southwest Texas, construction of which is to get under way immediately; a plant recently put into operation in the new Kimball Lake field in Newaygo County, Michigan; and a pressure-maintenance plant completed last year in Norwich field, Missaukee County, Michigan.

Stanolind Acquires Option

Stanolind Oil & Gas Co. has acquired an option to purchase 170 acres of the Sherrod lands in Val Verde School Land Survey, Levelland field, Hockley County, Texas, as a possible site for a natural-gasoline plant. The property is adjacent to the Panhandle and Santa Fe Railroad which runs through Levelland field.



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Far more interesting and useful than any photograph could be, is the picture of your well made by these instruments. For a Lane-Wells Radioactivity Well Log tells you what you want to know about the *important* part of your well—hundreds or thousands of feet below the surface. Formations are defined and located in exact reference to the casing collars: the characteristics of the formations are revealed; fluid levels, liner tops, casing seats, gas/oil contacts, thin stringers and inter-bedding are all shown with an accuracy which can be measured in inches. Run a Lane-Wells Radioactivity Well Log, and you'll really know your well—every foot of it!

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Drilling Contractors

Cement Casing to Be Used On Kansas Test

Lewis Drilling Co., Wichita, has announced that the firm will run the first string of cement casing to be used in Kansas. The test is in northern Stafford County. It is said that a string of approximately 240 ft. of 10-in. i.d. surface pipe will be used. The casing is made of centrifugally spun, steel-reinforced cement and is the invention of Charles Knox, Enid, Okla., who is building a plant to manufacture the product. A previous test was made of the product in an Oklahoma well. The casing is made in 12-ft. lengths and is lowered into the hole a joint at a time by means of a specially constructed attachment at the end of the drill pipe. The joints are connected by steel collars and when the string is in place, it is cemented in the same manner as steel casing.

Firm to New Offices

Heathman-Honaker Drilling Co. has moved to new offices at 510 Orpheum Building, Wichita, from its previous location in the Petroleum Building. Jack H. Heathman and Joe J. Honaker are owners of the firm, with Heathman making his headquarters at the Wichita office and Honaker at Great Bend, from where he superintends drilling activities. A recent addition to the company is Robert F. Walters, formerly of Gulf Oil Corp.'s geological department, who is in charge of the firm's Rocky Mountain area activities, with headquarters in Denver.

Delta Drilling Co. is contractor on the Lone Star Producing Co. 1 Dixie Hall, wildcat in Block 31 of Hadden Edwards Survey, Rusk County, Texas, 4 miles southeast of Kilgore. Contract is for 8,000 ft. or the Travis Peak. The test is on an 8,000-acre lease block.

Grace Drilling Co. will drill Atlantic Refining Co. 4 Joseph A. Blanchard, 37-13s-9e, in South Jeanerette field, St. Mary Parish, Louisiana. Contract depth is 6,700 ft.

Trigg Drilling Co. is drilling contractor on the Peppers Refining Co. et al 1 Culp, SE NW NE 6-5n-9w, Caddo County, Oklahoma, which has drilled to 7,300 ft. in the Marchand zone, pipe set on bottom, and was ready to perforate. Trigg is also contractor on the Peppers 2 Newbern, in SE NW SW 11-5n-9w, which was drilling at 5,821 ft.

J. C. Hawkins et al will drill Magnolia Petroleum Co. 2 Four C. McPherson, in Hurricane Creek field, Beauregard Parish, Louisiana, to a contract depth of 9,000 ft. Derrick is now on location.

L. T. Burns is drilling the Van-Grisso Oil Co. and Earl Stilley 1 Garvey, in Section 1870 of TE&L Survey, on southwest edge of Burns-Jones field, Archer County, Texas. Contract is for 3,250 ft.

W. Sherin & Sons have contract on the Peppers Refining Co. 1 Buck Neil, in SW SE NW 27-1n-4w, a mile north of production on the Sholem Alechem northwest trend, Noble County, Oklahoma, which was drilling at 4,812 ft.

Mountain States Exploration Drilling Co. has started operations in Alberta with headquarters at Vermilion, and is carrying on exploratory work north of that town.

Loffland Brothers have cemented 7-in. protection pipe in Chicago Corp. 1 Liquidators, Inc., wildcat exploration test 2 miles southwest of the Duson field discovery in Lafayette Parish, Louisiana. Pipe was cemented at 10,775 ft. and operators are preparing to drill ahead. Projected depth is 12,500 ft.

Long Brothers have spudded in the Sid Katz 1 A. M. Bruni Estate, Webb County, Texas, wildcat located in Section 36, Brown Oil and Gas Subdivision, Share 6, Las Albercas Grant, 10 miles southeast of Mirando City and 12 miles southwest of Bruni. Contract depth is 2,450 ft.

Circle Drilling Co. has been awarded contract to drill William Helis 1 R. J. Hummel, wildcat in Mallet Bluff area, East Baton Rouge Parish, Louisiana, 2½ miles north of Hallets Bayou production. Contract depth is 11,000 ft.

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RUNNING High

Delta Drilling Co., Tyler, Tex.

Growth.—Incorporating in Texas in 1931 and starting with two small used steam rotary rigs, drilling principally in East Texas field, this firm has grown steadily until it is now

J. ZEPPA

CHRIS ZEPPA

operating in East Texas, Arkansas, Louisiana, Illinois, Indiana, Kentucky, and Wyoming. Delta, besides its extensive contract drilling, now produces 2,500 bbl. of oil daily (mostly prorated) in six states — also owns extensive gas properties in Chapel Hill and Carthage fields of East Texas—and owns Etexas Producers Gas Co. (pipe-line system connecting Chapel Hill with consumers in East Texas and Sand Flat oil fields).

Rigs.—Eighteen rotary rigs, ranging in capacity from 6,000 to 15,000 ft. Most are extra-heavy type powered by steam, internal-combustion engines, and diesel-electric units.

Personnel. — Officers: J. Zeppa, president; Chris Zeppa and Sam Sklar, vice presidents; J. M. Bevill, secretary; A. M. Jones, assistant secretary. Operations: Chris Zeppa, general superintendent; O. E. Mechem, assistant general superintendent; G. E. Jones, production superintendent; B. W. Freeman, motor-equipment superintendent; A. B. Owen, transportation superintendent; O. E. Mechem, chief engineer; G. B. White, division superintendent, Evansville, Ind.; R. W. Waddell, mud engineer; and A. B. Martin, E. M. Gandy, W. J. Keel, D. W. Rogers, I. F. Walters, R. H. Freeman, Henry Smith, Ragan Ford, H. A. Wood, tool pushers.

Offices — Main: Citizens National Bank Building, Tyler. Divisions: Old National Bank Building, Evansville, Ind.; Ardis Building, Shreveport, La. (Douglas Whitaker).

Discovery wells. — As contractor: Chapel Hill and South Tyler fields, Smith County, Texas; Tri-States and La Rue fields, Henderson County,

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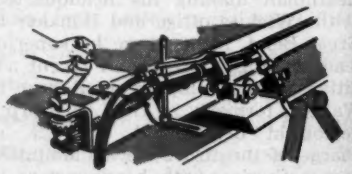

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Texas; Shuler field, Union County, Arkansas. As oil producer: Quitman field, Wood County, Texas; Como field, Hopkins County, Texas; Wise field, Cherokee County, Texas; Boynton field, Smith County, Texas; Smith Mills pool, Henderson County, Kentucky.

Rocky Mountain district. — Delta has now entered this area with two of the largest rigs made. One will drill to 13,000 ft. on a footage contract basis. Delta plans to increase its drilling equipment here, and establish a division office in district.

Sidelights. — Joe Zeppa, president and principal stockholder, was an organizer and is a director of Premier Oil Refining Co. of Texas; he was also active in organization of East Texas Salt Water Disposal Co. and continuously has served as a director and on executive committee. Delta operates three airplanes, including a twin-engine Beechcraft and a single-engine Howard.

Nicklos Drilling Co., Houston, last week was moving in a heavy-duty steam rig to start operations on a projected 12,000-ft. job for Gulf Oil Corp. in Mykawa field, Harris County, Texas. The test, 1 E. G. Siadous, is in the William J. Lovett Survey and is about 7 miles south of Houston.

Helmerich & Payne, Inc., Tulsa, has been awarded contract to drill the Union Producing Co. 1 G. G. Music, in C SW NW 25-10n-21w, Beckham County, Oklahoma. This will be the second well to test the possibilities of the major area south of Elk City. Work will start late this month, with the test scheduled to go to 10,000 ft. Location is south of the Shell Oil Co., Inc., 1 Walters, discovery of Elk City field.

Helmerich & Payne will also drill the Stanolind Oil & Gas Co. 1 Chappelear, in SW SW NE 8-7n-15w, Kiowa County, Oklahoma, between Gotebo and Mountain View, which was spudding at 130 ft. Contract is for 6,500 ft.

C. M. Bagley was contractor on the Newton Oil Corp. 1 Nale, wildcat in C NW NW 30-23n-1e, Union Parish, Louisiana, between Oakland and Ora fields, which was recently completed as a producer. Total depth is 2,246 ft.

Ray & Woolf, Shreveport, have started an 8,000-ft. test in northeast sector of shallow Sligo field, Bossier Parish, northern Louisiana. Well is 1 J. Swinney, 5-17n-11w.

Kowa Drilling Co., Wichita, and Derby Oil Co. have staked location for their 1 Woolf, a wildcat 2 miles east of Max pool, Stafford County, Kansas. Test is in NE NE SW 32-21-11.

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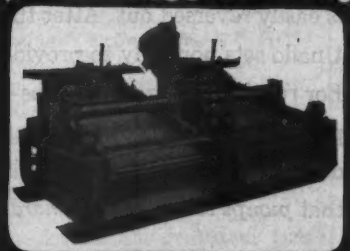

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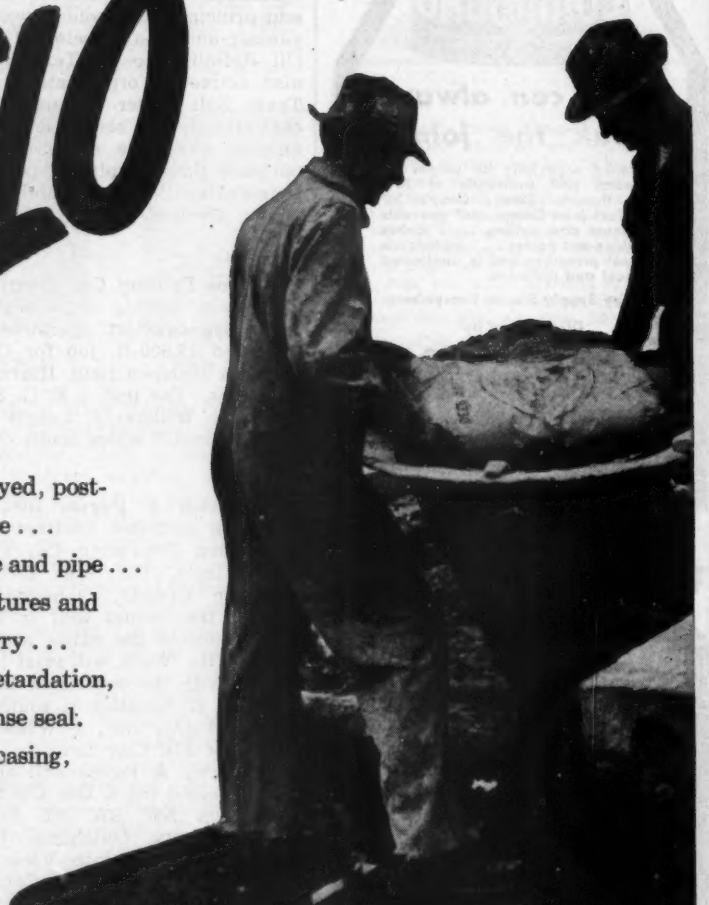

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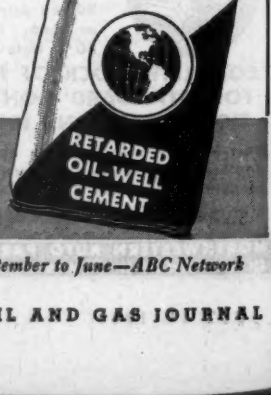

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Utah May Get New Oil Field

UTAH may get a commercial oil field, if Carter Oil Co. 1 Nelson, SE SW 33-5s-21e, Uintah County, lives up to its promise on drill-stem tests. After topping the Wasatch (Eocene Tertiary) at 7,070 ft., a core at 7,071-79 ft. showed 4½ ft. of gas sand, and the lower 2 ft. of the 6½ ft. recovered was saturated with oil.

A drill-stem test at 7,068-79 ft., open 40 minutes, had a gas flow estimated at 5,600,000 cu. ft. per day, and recovered 30 ft. of oil. A core at 7,079-89 ft. recovered 4 ft. of saturated oil sand, and 2½ ft. of green shale. The second drill-stem test, at 7,077-89 ft., open 1 hour, had gas estimated at 3,700,000 cu. ft. per day, oil spray in 25 minutes, and recovered 156 ft. of 30°-gravity oil.

The final core was taken at 7,089-7,100 ft., and recovered 7 ft. of sand with faint gas odor. Pipe was then run, cemented, and is now being readied for perforation and testing.

This is Carter's fourth test on a projected five-wildcat program in a 57,500-acre unitized block. The previous three tests are understood to have been a stratigraphic-trap play based on the possibilities of sand beds pinching out against the Uinta uplift on the north side of the Uinta basin. It is reported that the Nelson test is based on structure, perhaps surface work. The play is part of the general exploration program touched off in the Uinta basin by the deep sand production at Rangely.

While no major Tertiary production has been found in the Rocky Mountain area, some oil and gas have been found in commercial quantities in the Wasatch formation at LaBarge and Big Piney in southwestern Wyoming and at Hiawatha and Powder Wash in northwestern Colorado, right on the Colorado-Wyoming line.

At Hiawatha and Powder Wash the Wasatch sands are continental deposits, with a section dominantly red of shale, shaly sand, sand, and minor coal deposits, probably lacustrine. Thus far, gas has probably been more important commercially than the oil, taking all the Colorado Wasatch production as a whole.

Obviously these are either borderline cases or exceptions to the rule that oil is found almost always in marine deposits. For this reason there will be considerable skepticism about the potentialities of the new Utah strike.

On the other hand, as most geologists freely admit, oil is where you find it, and the explanation of the whys and wherefores of unusual or different types of accumulation must follow their discovery, not precede it.

HIGHLIGHTS OF WEEK'S DEVELOPMENTS

WEST TEXAS.—New Ellenburger production is indicated ¾ mile southeast of Silurian wells in the Shipley field of Ward County at Gulf Oil Corp. 8-E Wristen Brothers. Perforations in casing from 8,998-9,065 ft. were swabbed and flowed to recover 58 bbl. of oil. Feldman 1 Pray-State, Upton County wildcat which had salt water in the Ellenburger on a test at 11,785-11,945 ft., will plug back to around 11,205 ft. and test shows of oil in the Fusselman section of the Silurian. The section between 11,134-11,209 ft. recovered oil and gas-cut water blanket.

EAST TEXAS.—Humble Oil & Refining Co. plans to deepen its 1 Winters, Smith County wildcat in the Red Springs area and north of the Sand Flat Paluxy field, from its present depth around 7,500 ft. to 11,000 ft.

NORTH TEXAS.—Woodley Petroleum Co. 1 Parker, east offset to the Dickie Mississippi lime field of Throckmorton County, recovered oil on a drill-stem test of the Caddo from 3,948-70 ft. It is also showing for production in the Mississippi at 4,541-71 ft. Saguaro Drilling Co. 2-B Herron has opened the Saguaro Mississippi lime field of Western Throckmorton County to Caddo production, completing for 120 bbl. of oil in 24 hours from casing perforations at 4,170-75 and 4,184-89 ft.

SOUTH LOUISIANA.—Superior Oil Co. 1-A State, Block 71, 19 miles out in the Gulf of Mexico off Vermilion Parish, has opened a new gas-condensate field. This field is the farthest yet out on the Continental Shelf. Abandoned last year at a total depth of 12,926 ft., operators moved in and cleaned out to a depth of 9,680 ft. On drill-stem test through perforations at 9,608-18 ft., the well flowed gas with light spray of condensate. On initial gage it flowed at rate of 65 bbl. of 52°-gravity condensate per day through 10/64-in. choke along with 7,024,000 cu. ft. gas.

CALIFORNIA.—The successful completion of Richfield Oil Corp.'s second Cuyama Valley well, the 2 Anderson-Colgrove, 30-11n-27w, with an initial production of 6,000 bbl. per day, added impetus to the current drilling boom in that area. Mercury Oil Co. opened a new pool in the Chino Hills area, San Bernardino County.

ROCKY MOUNTAIN AREA.—Oil and gas was recovered by Carter on its fourth wildcat test of the Vernal Unit in Uintah County, Utah, and the operator has run casing. Fourteen feet of gas and oil sand were encountered in the Wasatch formation between 7,070-84 ft. Saturation was found in the Leo at Pacific Western's Bridge Creek wildcat, Niobrara County, Wyoming, but the zone tested water. Casing has been cemented at British American's Longs Creek wildcat, which a week ago found saturation in the top of the Tensleep sand. Continental's Taylor Sussex, Johnson County, Wyoming, discovery, is flowing 14 bbl. of 39°-gravity green oil per hour.

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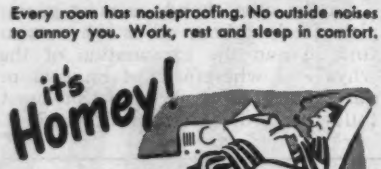

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EASTERN TEXAS

Henderson Wildcat Looks Like Gas-Distillate Producer

DALLAS.—J. P. Owens, E. R. Lamb, and Newton Oil Co. 1 DeArmon, Henderson County wildcat 3 miles southwest of Tri-Cities field, and separated from the field by a 7,680-ft. dry hole, had definite prospects of becoming a gas-distillate producer from the Travis Peak, with an indicated 80-ft. pay section.

Perforations were made from 8,310-16, 8,319-24, and 8,280-90 ft. A drill-stem test of the first two sets of perforations, with ¼-in. top and ⅜-in. bottom chokes, brought gas to the surface in 10 minutes, generating a flowing surface pressure of 30 psi. in 6 minutes, and 355 psi. in slightly more than 1 hour. Maximum surface pressure was 540 psi., and shut-in pressure was 1,800 psi. in 1 hour. It was later opened and flowed 686,000 cu. ft. of gas a day, with an estimated 40 bbl. of 58°-gravity white distillate. Recovery from the pipe was 450 ft. of white distillate and 750 ft. of mud cut with gas distillate.

A test of perforations, from 8,310-8,290 ft., using ¼-in. top and ⅜-in. bottom chokes, and packer at 8,235 ft., gaged a daily flow of 1,190,000 cu. ft. of gas, plus 18 bbl. of distillate per 1,000,000 cu. ft. Testing tool was still open on last report.

Magnolia Petroleum Co. et al reentered the 1 S. L. Orr, 10,513-ft. wildcat in the Robert B. Fowler Survey, 5 miles west and slightly north of Lassater, in Marion County, to test casing perforations between 9,025-35 ft., in the Cotton Valley. These perforations were previously reported as in the Travis Peak. With packer set at 9,000 ft., estimated, and using ¼-in. chokes, the well flowed 37 bbl. of 61.5°-gravity distillate in 4 hours. Gas flowed at the rate of 3,300,000 cu. ft. a day. Flowing pressure was 2,100 psi.

In Shelby County, east of Patroon, Humble Oil & Refining Co. 1 First State Bank of Tenaha was drilling below 4,815 ft. in shale and lime. It had the Paluxy shale at 4,210-20 ft., and upper Glen Rose at 4,490-4,500 ft., by samples. Humble 1-C Pickering made a flow of 35 bbl. of 31.9°-gravity oil a day, through ¼-in. choke, from perforations in the upper Glen Rose at 5,164-92, 5,198-5,200 and 5,200-12 ft. Gas-oil ratio was still running around 8,000 cu. ft. and operators will rework the well in an attempt to lower it. After it was shut in for 15 hours, casing pressure built up to 1,860 psi., and tubing pressure was 1,700 psi. Operations were delayed when a pressure bomb was lost in the hole. Total depth is 9,300 ft., plugged back to 5,220 ft.

In Smith County, Humble 1 Kate E. Sackett estate, 1½ miles south of Flint, was drilling below 9,195 ft. with no shows reported. Humble 1 Everett Winters, ¾ mile southeast of Red Springs, was drilling below 7,854 ft. in hard sand and shale.

New locations totaled 23, being 4 wildcats and 19 in fields. Anderson, Cass, Navarro, and Rusk counties gained one exploration test each. Drilling on the Alba townsite in Wood County has shown a sudden spurt of activity, with nine new wells listed last week. Other field wells were: Tri-Cities three, Yantis two, and one each in Waskom, Carthage, Henderson, Van, and Manziel. Week's completions were nine oil, one gas, and six dry, including four wildcat failures.

EAST TEXAS (DISTRICTS 5 & 6) WILDCAT FAILURES

Cass County: W. F. Nenney et al 1 Marion Cass Co., John Blanton Sur., 4 mi. E Hughes Springs, dry, TD 4,230 ft., Woodbine 4,002 ft., Georgetown 4,110 ft., elev. 348 ft.

Freestone County: C. L. Brown 1 South Texas Lumber Co., James McAnnulty Sur., 4 mi. E Teague, dry, TD 8,198 ft., sample tops: Austin 3,756-4,020 ft., Woodbine 4,390-4,816 ft., Buda 4,816 ft., Grayson 4,940 ft., Georgetown 4,975 ft., Goodland 5,570 ft., Paluxy 5,910 ft., Glen Rose 6,160 ft., Rodessa 7,340-7,843 ft., James 7,843 ft., Pettit 7,986-8,178 ft., no shows, elev. 428 ft.

Kaufman County: J. C. Moore 2 F. S. Greer, Wesley Boles Sur., 2 mi. SW Scurry, dry, TD 2,509 ft., no shows.

Limestone County: Burk Royalty Co. 2 Arnett, P. Varela League, 4 mi. S Groesbeck, dry, TD 5,672 ft., logged Austin 2,625-2,961 ft., Woodbine 3,392 ft., Georgetown 3,773 ft., massive anhydrite 4,834 ft., by samples: Pettit 5,445 ft., Travis Peak 5,595 ft.

Robertson County: J. E. Davant & Maner Graham 1 K. Tidemann, George Robertson Sur., 5 mi. NE Calvert, dry, TD 5,419 ft., Pecan 3,218 ft., Austin 4,248 ft., Comanche 4,910 ft., Buda 4,921 ft., Georgetown 5,046 ft., Edwards porosity 5,372 ft., no shows, elev. 420 ft.

APPALACHIAN FIELD

Deep Wildcat Scheduled For Jackson County

PITTSBURGH.—In Ripley district, Jackson County, West Virginia, South Penn Natural Gas Co. has made a location for a deep wildcat scheduled for the Clinton sand on W. M. King farm. Located on the Ravenswood Quad, it is 2.0 miles south 38° 50' and 2.6 miles west 81° 45' and starts at a surface elevation of 750.16 ft. It appears west of Oriskany possibilities and will be of extreme importance.

In Ravenswood district, Jackson County, in the closely drilled local pool around the town of Silverton, Parkersburg Oil & Gas Co. completed a second well on the Anna Pepper farm in the Berea and it showing for 100 bbl. initial.

In Grant district, Jackson County, another wildcat topped the Corniferous lime. Hope Natural Gas Co. reached that member at 4,830 ft. from a surface elevation of 925 ft. in No. 9,229 Lee Batten.

On Briery anticline in Portland district, Preston County, Snee, Eberly et al topped the White Medina at 8,805 ft. in the wildcat on Virginia Cuppett farm. The Red Medina was not distinct in color and before reaching 8,805 ft., there were streaks of white sand and shale. At 8,765 and 8,789 ft. there was an increase in gas being carried from the Oriskany sand of about 10,000 cu. ft. which blew down with drilling.

In Ripley district, Jackson County, Godfrey L. Cabot, Inc., completed 1,277 G. W. Harpold with a final gage of 900,000 cu. ft. gas. From a surface elevation of 839 ft. the Corniferous lime was logged 4,954 ft., Oriskany 5,057-83 ft., shot 5,063-78 ft., rock pressure 1,740 psi. 40 hours, total depth 5,083 ft.

In Laurel Hill district, Lincoln County, Roy & McComas completed 9 Hans Watts Realty in the Big lime which after acidizing gaged 1,524,000 cu. ft. gas from a total depth of 1,471 ft.

In Oceana district, Wyoming County, Hope Natural Gas Co. completed 9,218 G. L. Chambers good for 3,067,000 cu. ft. gas with a rock pressure of 770 psi. in 24 hours from the Maxton sand, total depth 2,202 ft.

New locations totaled 18 and were in Washington district, Boone County; Barboursville district, Cabell County; Sherman district, Calhoun County; Union district, Clay County; Center district, Gilmer County; Ravenswood and Ripley districts, Jackson County; Cabin Creek district, Kanawha County; Logan district, Logan County; Grant district, Marion County; Webster district, Marshall County; Clay district, Monongalia County; Slab Fork district, Raleigh County.

WEST VIRGINIA SUCCESSFUL WILDCAT

Kanawha County, Elk district: Glenn Dearth 1 J. E. Donohoe, 11,000,000 cu. ft. gas, elev. 661 ft., Corniferous lime 4,583 ft., gas from Oriskany sand, TD 5,004 ft.

CALIFORNIA

Richfield Completes Second Cuyama Valley Well

LOS ANGELES.—All doubts as to the producing possibilities of the Cuyama Valley were dispelled last week when Richfield Oil Corp. completed its second well on the Anderson-Colgrove lease, the 2 Anderson-Colgrove, 30-11n-27w, flowing at the rate of 6,000 bbl. daily from a total depth of 2,970 ft. This well is located approximately 1,000 ft. northwest of the discovery well on the lease which was completed late last month for 4,000 bbl. daily. The discovery well has since been pinched back to about 500 bbl. daily, and the new well probably will be cut back to approximately the same rate.

The Cuyama Valley already is undergoing one of the most active drilling booms that has taken place in the state for several years. Richfield currently is running 10 rigs and a few are being run by other companies. More are scheduled to start in the near future, and the demand for portable rigs in the area is making the drilling situation throughout the entire San Joaquin Valley very tight.

All major companies are now reported to be actively leasing in the Cuyama Valley, and leases as far as 10 miles from the Richfield discoveries are reportedly bringing bonuses as high as $150 per acre with 20 per cent royalty.

Mercury Oil Co. has opened a new oil field in the Chino Hills area of San Bernardino County with its well No. 1, 32-2s-8w. Drilled to a total depth of 1,273 ft., the well was gun perforated at the interval 1,180-1,255 ft. and came in flowing oil and gas at an unestimated rate. Operators have now shut the well in preparatory to completing it. Shut-in pressures are 200 psi. on the tubing and 150 psi. on the casing.

Standard Oil Co. of California has completed its deep-zone discovery on the Kettleman Hills South Dome, but the well is not living up to expectations. The well, 4-2 S. F. & F. L., 12-25s-19e, is standing with the oil level at 3,000 ft. It has been swabbed for 2 days, but has shown nothing in the way of flowing tendencies. Operators are now preparing to bail.

Standard officials point out that the well was completed under extremely unsatisfactory circumstances. Drilling had progressed to 12,922 ft. when drill pipe became stuck and had to be cut off. Then while fishing operations were under way, the well blew out and started to flow at a rate estimated to be 100 bbl. per hour. Following the blowout, Standard again tried to recover the remaining drill pipe but was unsuccessful. At this point it was decided to complete the well with the fish in the hole. Casing had been run to 9,397 ft., but this left about 3,500 ft. of open hole in the completed well. Consequently, it is not surprising that the well has not done well up to this time. It has done well enough, however, to justify the drilling of another well on the structure. As a matter of fact, many scouts and geologists believe that a discovery of major importance has been made. The oil is believed to be coming from the Eocene which reportedly was found near the bottom of the hole.

CALIFORNIA SUCCESSFUL WILDCATS

Kern County, Wheeler Ridge area: Richfield Oil Corp. 178-20 KCL-Coal Canyon, 20-11n-20w, pumped 65 bbl. daily, grav. 23.0°, water cut 13.0 per cent, elev. 1,279 ft., perf. 881-1,194 ft., TD 1,240 ft.

Monterey County, San Ardo area: Jergins Oil Co. & North American Consol. Oil Co. 73-11 Ferrini, 11-23s-10e, flowed 350 bbl. daily through ½-in. choke, elev. 750 ft., TD 3,392 ft.

Santa Barbara County, Zaca area: Tide Water Assoc. Oil Co. 22 Chamberlin, 33-8n-31w, pumped 415 bbl. daily, water

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CALIFORNIA WILDCAT FAILURES

Kern County, Blackwells Corner area: Hamilton & Sherman B-6 Beer, 7-26s-19e, dry, elev. 614 ft., Agua sand 740 ft., TD 821 ft.

Superior Oil Co. 2 O.L.C., 23-26s-19e, dry, elev. 675 ft., TD 3,483 ft.

San Luis Obispo County, Cuyama Valley area: Bandini Petroleum Co. 1 Graham, 34-11n-26w, dry, elev. 2,523 ft., TD 2,039 ft.

Solano County, Potrero Hills area: Standard of California 6 Kirby Comm., 13-4n-1w, dry, elev. 10 ft., TD 2,057 ft.

Yolo County, Winters area: Shell Oil Co., Inc., 2-1 Pleasant Creek Unit, 17-8n-1w, dry, elev. 170 ft., Hooper 3,353 ft., TD 4,500 ft.

LA.-ARK.

Smackover Discovery Awaiting Cable Tools to Complete

EL DORADO.—McAlester Fuel Co. 1-A W. D. Black, Smackover discovery 4 miles west of Stephens field in 24-15s-21w, Columbia County, made additional perforations which yielded additional oil recovery but also increased the salt water. New holes were from 6,532-35 ft. A drill-stem test of that interval, with the tool open 17 hours, with ⅛-in. bottom and ¼-in. top chokes, recovered 5,500 ft. of oil and 1,000 ft. of salt water. Operators were waiting on standard tools before making completion attempts.

In Lafayette County, Stanolind Oil & Gas Co. 1 Bodcaw, 29-19s-23w, was drilling below 4,927 ft. in anhydrite. It had base of the Tokio at 3,215 ft., by samples. One mile northwest of Cypress Lake field, Garland Anthony 1 Smith, 20-16s-25w, was shut down for repairs at 2,590 ft. in the Tokio. It is a new operation, scheduled to 4,000 ft. Carter Oil Co. 1 Riley Pepper, 15-19s-15w, Union County, was drilling at 6,779 ft. in the Cotton Valley, after running electric log.

Curtis A. Kinard 1 Scales, 3-18s-17w, Union County, was coring below 7,769 ft. in the Cotton Valley. Cores from 7,755-63 ft. recovered 2 ft. of tight, hard lime with oil odor; 6 in. of sand with oil stain, 1 ft. of lime with oil stain and odor, and 1 ft. of porous lime with oil odor and stain. A drill-stem test between 7,759-69 ft., using ¼-in. chokes and open 5 minutes, brought gas to the top in 4 minutes at a pressure of 50 psi., and recovered 200 ft. of water cushion plus 438 ft. of 38°-gravity oil.

In Caddo Parish, Chicago Corp. and L. E. Parker 1 Ledbetter, 4-22n-15w, was pumping a little more oil on last report, with considerable salt water. From Pettit perforations at 5,716-24 ft., it pumped 15 bbl. of oil and 40 bbl. of salt water daily. Previous report credited with 1 bbl. of oil and 2 bbl. of water.

Skelly Oil Co. 1 Nunley Unit, prospective gas discovery 2 miles north of production in Logansport field, DeSoto Parish, remained shut in awaiting gage. Total depth is 6,373 ft., in the Travis Peak. Perforations are from 5,132-52 ft., apparently in the lower Glen Rose.

NORTH LOUISIANA WILDCAT FAILURES

Bossier Parish: J. W. Cosner 2 Sentell-Dickson, NE SE SW 3-20n-13w, dry, TD 2,786 ft.

Richland Parish: Union Producing Co. 1 N. J. McConnell, SE NW 32-17n-7e, dry, TD 3,871 ft., Wilcox 1,225 ft., Midway 1,927 ft., Tuscaloosa 2,410 ft., sand 2,440 ft., lower Cretaceous 2,458 ft., James 3,080 ft., Sligo 3,366 ft., Pettit 3,424 ft., Travis Peak, 3,688 ft., elev. 79 ft.

Webster Parish: Hunt Oil Co. 1 Ardis Burns, SW NW 16-23n-9w, dry, TD 12,675 ft., elev. 334 ft.

CANADIAN FIELDS

Armena District Test Gets Encouraging Showing

CHATHAM, Ont.—Possibilities of a new discovery similar to Leduc field are indicated in the Armena district 30 miles to the southeast, where Imperial-Armena 1, LSD 13, 10-48-21w4, has encountered encouraging oil showings. A release by Walker L. Taylor, western production manager, says:

"A series of drill-stem tests within the top 100 ft. of the Devonian at 1 Imperial-Armena has given encouraging showings of light crude oil plus a little gas and salt water. The well will core and drill on for test of deeper levels in the Devonian."

The first drill-stem test at 4,150-86 ft. in 40 minutes gave a maximum gas flow rate of 38,000 cu. ft. While pipe was being pulled, it began to flow fluid with about 1,300 ft. or drill stem still in the hole, with fluid recovery about 600 ft. of oil and gas-cut mud and a trace of water. A 1 hour test at 4,172-86 ft. next day gave gas at 36,000 to 70,000 cu. ft. a day, with 1,040 ft. of fluid, comprising 240 ft. gasified mud, 780 ft. gasified oil, some gas, and out-cut mud and 30 ft. of salt water. The oil tested around 30° A.P.I. gravity.

Part of the rathole was then reamed and an additional 6 ft. cored, after which drill-stem test at 4,185-94 ft. in 1 hour gave maximum daily gas flow rate of 22,000 cu. ft. with 640 ft. of gasified and oil-cut mud and 20 ft. of salt water. The well is deepening to test the lower Devonian horizons, commercially productive in Leduc field. It is the first of a series of recent wells outlying the Leduc area to indicate possibilities of production.

Woodbend.—Northeast of the Woodbend extension, Consolidated-Homestead 1, LSD 9, 31-51-25w4, deepened by both Imperial and Homestead below the original abandonment depth of 5,500 ft. encountered some porosity in a brown lime formation at 5,786 ft. A drill-stem test showed only salt water, and the well has now been abandoned.

Eyot.—Imperial-Eyot 1, LSD 2, 28-49-25w4, about 10 miles southeast of Leduc production, is being abandoned at 7,849 ft. after getting good but noncommercial oil shows. The well was plugged back from the Devonian to test the lower Cretaceous where 12 to 14 ft. of porosity yielded about ½ bbl. per hour.

Camrose.—In the Camrose area, about 12 miles from Imperial-Armena 1, the Anglo-Home-Calgary & Edmonton group has spudded Camrose 2 in LSD 9, 32-46-20w4. An earlier test, abandoned last October, got oil and water in the D-2 zone. Location is considerably south and east of Leduc production. The same interests are abandoning St. Ann 1, LSD 9, 28-55-4w5, on the Alexis Reserve at 6,000 ft. after getting some encouraging shows.

Pincher Creek.—Following checking of the 5-in. casing, Gulf Canadian-Pincher Creek 1, LSD 15, 24-3-29w4, finished at 12,516 ft., is preparing to perforate casing in the lower zone of the Madison limestone. The well is a large wet gas and naphtha producer in the upper zone.

Lloydminster.—In the Saskatchewan end of Lloydminster field, Husky-Jupiter-McLaren 1 tested the deep sand reported around 2,200 ft. but found it tight. Casing was then perforated at 1,670 ft. with 600 ft. oil rise accompanied by sand. Well is bailing 50 bbl. daily with 400 ft. of oil standing in the hole. Husky-Jupiter-McLaren 3, two sections to the east, is drilling near production.

Quebec.—In the St. Hubert section of downtown Montreal, a deep test is being drilled by J. L. Ashton of Chatham for St. John's Petroleum Co. Drilling, started in 1947, shut down for the winter but resumed in April and is below 3,600 ft. with objective between 4,700 and 5,000 ft.

MICHIGAN

Osceola Test Looks Like Pool Opener

SAGINAW.—Gulf Refining Co. hoped for a new Michigan oil pool as it tested this week its 1 State-Sylvan wildcat in Section 9, Sylvan Township, Osceola County. Pay was encountered at 3,934 ft. in Dundee dolomite, the hole filling 665 ft. with oil in 10 minutes on a rotary drill-stem test, a showing that officials termed highly satisfactory. The well appears destined to be the first producer in the township. The new pool if it develops already is defined by dry holes previously drilled 2 miles to the northwest, 1½ miles south, and ¾ mile east by other companies.

The State-Sylvia is Gulf's first in the area in which it has an acreage monopoly with about 2,400 acres under lease, company officials said. Nearest production is about 6 miles southwest of Evart pool.

The week in Michigan resulted in 16 completions resulting in 5 oil producers, 4 gas wells, and 7 dry holes. Sixteen new locations were announced. Four of the dry holes were wildcats. Three of the producers, good initially for 60, 85, and 145 bbl. a day, are in the recently opened South Hopkins pool of Allegan County. A 50-bbl. Van Buren well and a 40-bbl. Bay County producer are the other new wells. The four gassers are in Clare County.

New locations are in nine counties, four

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in Allegan, four in the new Osceola Pentwater field, two in Bay, one each in Midland, Isabella, Kent, Montcalm, Ionia, and Mecosta.

MICHIGAN WILDCAT FAILURES

Huron County, Sherman Township: Fred Riddel 1 Goetze, NW SW SE 31-15n-16e, dry in Dundee, TD 1,700 ft.

Kent County, Byron Township: P. K. Degenther 1 E. W. Marshall, NE NE SE 8-5n-12w, dry in Traverse limestone, TD 1,863 ft.

Montcalm County, Douglas Township: Leslie T. Barber 1 Kenneth E. Lavery et al, SE SW SE 17-11n-7w, dry in Marshall, TD 1,203 ft.

Van Buren County, Keeler Township: Ohio Oil Co. 1 Sanford H. Christofferson, NW NW NE 20-4s-16w, dry in Traverse limestone, TD 925 ft.

SOUTH LOUISIANA

Superior Opens Gas Condensate Pool

NEW ORLEANS.—A new gas-condensate pool 19 miles out in the Gulf of Mexico off Vermilion Parish, has been opened by Superior Oil Co. The 1-A State, Block 71, was abandoned last year with a total depth of 13,628 ft. in the sidetracked hole. Original hole was carried to a depth of 12,926 ft. where it attempted to blow out. Operators cleaned out to a depth of 9,680 ft. and 9,250 ft. of 7-in. casing was run. On a drill-stem test through perforations at 9,608-18 ft. using a 3,500-ft. water cushion, flowed gas with a light spray of condensate through ⅜ and ¼-in. chokes. On an initial gage the well flowed at the rate of 65 bbl. of 52°-gravity condensate per day through a 10/64-in. choke along with 7,024,000 cu. ft. of gas, ratio 111,989. Flowing pressure was 3,800 psi. Open-flow tests are being conducted and derrick is being moved for another test in the immediate vicinity. This field is the farthest yet out on the Continental Shelf.

J. C. Hawkins et al 1 Doulussa Vidrine Young, wildcat between Tepetate and West Tepetate fields in Acadia Parish, has been completed as a new gas-condensate discovery. Located in 10-7s-2w, this well was drilled to a total depth of 9,157 ft. and set 5½-in. casing at 9,156 ft. Completion was made through perforations at 8,530-36 ft. in the Marginulina, flowing 92 bbl. of condensate per day along with 5,000,000 cu. ft. of gas per day through a ¼-in. choke. Flowing pressure on tubing was 2,525 psi., gas-condensate ratio 54,300, gravity 60.4°.

Magnolia Petroleum Co. 1 State Lease 679, Block 77, new shallow salt-dome discovery 13 miles east-southeast of Rabbit Island field, in the Gulf of Mexico approximately 13 miles off St. Mary Parish, showed gas and salt water on a new test. Total depth is 3,715 ft. On an initial test through perforations at 2,590-2,600 ft., a drill-stem test flowed 330,000 cu. ft. of gas in 19½ hours through a 12/64-in. choke with 380 psi. working pressure. Another test was made through perforations at 2,120-40 ft., developing only 6 psi. pressure and no flow. Last test was made through perforations at 1,690-92 ft. and on drill-stem test with packer at 1,675 ft., using ¼-in. chokes top and bottom, developed 30 psi. pressure in 30 minutes, but dropped to zero in 6 hours. Tool was pulled and recovered 60 ft. of salt water and 300 ft. of gas-cut mud. Perforations have been squeezed and another test is to be made.

The Texas Co. 4 State-Barataria Lease 346, which is expected to be the world's deepest producer, has resumed testing at record deep levels. This test is 1½ miles north of production in Queen Bess Island field, Jefferson Parish. Total depth is 16,106 ft. with 5½-in. casing cemented on bottom. Operators are now testing through perforations at 15,749-94 ft.

SOUTH LOUISIANA SUCCESSFUL WILDCATS

Calcasieu Parish: New gas pool—Sohio Pet Co. C-1 Sweet Lake Land & Oil Co., 34-10s-6w, 3 mi. due S of Bon Air field, 1½ mi. NE of Rossignal townsite, TD 12,010 ft., top sand 10,882 ft., perf. 10,882-97½ ft., IP: 1,000,000 cu. ft. gas per day through ⅛-in. choke, TP 2,950 psi., no water, dry gas. Completed May 20, 1948.

Lafourche Parish: New oil sand at Delta Farms field—The California Co. 51 La. Delta Farms, Unit 1, 6-17s-23e, TD 6,923 ft., top sand 6,908 ft., perf. 6,908-14 ft., IP: 135 bbl. oil per day through ⅛-in. choke, GOR 821, TP 1,150, grav. 40.5°, no water. Completed June 10, 1948.

St. Mary Parish: New oil sand at West Cote Blanche Bay field—Texas Co. 36 State-West Cote Blanche Bay Lse. 340, in the bay, Twp. 15s-6e, TD 2,100 ft., top sand 1,924 ft., perf. 1,924-34 ft., IP: 129 bbl. oil per day through 15/64-in. choke, GOR 111, TP 100 psi., grav. 20.5°, no water. Completed June 18, 1948.

New oil sand at South Jeanerette field—Atlantic Refining Co. 3 Jos. A. Blanchard, 37-13s-9e, TD 6,608 ft., top sand 6,524 ft., perf. 6,524-34 ft., IP: 154 bbl. oil per day through ⅛-in. choke, GOR 440, TP 1,010 psi., CP 1,150 psi., grav. 37°. Completed June 21, 1948.

SOUTH LOUISIANA WILDCAT FAILURES

Cameron Parish: The Texas Co. 5 Miami Corp. Fee, 11-14s-12w, East Cameron Prospect, dry, TD 12,502 ft.

Pointe Coupee Parish: The Texas Co. 1 Cleland W. Dearing et al, 20-6s-9e, Fordoche prospect, 10 mi. NE of Krotz field, dry, TD 10,500 ft.

N. CENTRAL TEXAS

Two Discoveries Make Completion Tests

WICHITA FALLS.—Two discoveries made completion tests last week, in North and Central Texas. In Shackelford County, 12 miles northwest of Albany, Big West Drilling Co. 1 J. H. Nail made preliminary tests of 12 bbl. of oil an hour from the Marble Falls section at 4,927-41 ft. Final gage was to be taken and the well placed on production. The 1 Nail kicked off and flowed without acid treatment.

North of Cisco, Lone Star Producing Co. 1 Chas. K. Kleiner "A" was officially completed for a flowing potential of 204 bbl. of 43.8°-gravity oil a day through 20/64-in. choke. Perforations in the Mississippi between 4,000-4,014 ft. represented only a small portion of the thick section showing oil and gas.

Oil Well Drilling Co. 1-K Dell Newell, Ellenburger wildcat 7 miles southwest of Albany, perforated the Ellenburger from 5,065-92 ft. and was showing a little free oil after acid treatment of 500 gal. Earlier the well swabbed the formation around 5,121 ft. but had no recovery.

Additional Marble Falls discovery production in southern Throckmorton may serve to open a large area around three new wells in that formation. The latest producer is Deep Rock Oil Corp. 1 Wright, Block 256, BBB&C Survey, about 3 miles southwest of the town of Throckmorton, which logged saturated Marble Falls sand from 4,794-4,802 ft. A 1-hour drill-stem test of the interval brought gas to the surface in 4 minutes and recovered 270 ft. of oil and 20 ft. of oil-cut drilling mud. Bottom-hole pressure was 1,850 psi. Operators drilled ahead. Location of the 1 Wright is 3½ miles southwest of J. H. Snowden 1 Marrs, Marble Falls discovery, and 2½ miles northwest of Deep Rock's 1 Andrews, also a Marble Falls producer.

New Caddo limestone production for southwestern Clay County has been reported at a wildcat that was drilled "tight." According to unoffocial information, Grace & Grace 1 Greer, Block 39, Grayson County School Land, 1 mile north of Blue Grove, was flowing 100 bbl. of oil a day from casing perforations between 5,722-52 ft.

Continental Oil Co.'s stratigraphic test, the 1 Kennedy, Block 27, ETRR Survey, 4 miles southeast of Montague, has recovered oil from the Caddo limestone and the Bend conglomerate. It topped the Caddo section at 6,182 ft. and on a drill-stem test from 6,208-19 ft. recovered 25 ft. of free oil. A section from 6,222-82 ft. recovered 120 ft. of oil. The Bend conglomerate from 6,463-11 ft. yielded 150 ft. of oil. From 6,450-58 ft. a test recovered 3 ft. of oil. It reported additional oil shows in drilling to 6,474 ft. but drill-stem tests recovered only oil and gas-cut mud. It was drilling ahead below 6,537 ft.

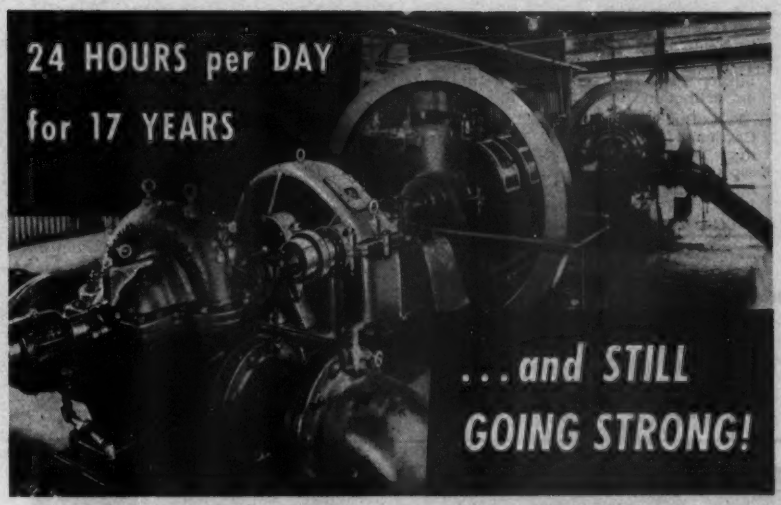
NORTH CENTRAL TEXAS (DISTRICTS 9 & 7-B) SUCCESSFUL WILDCAT

Eastland County: Lone Star Producing Co. 1 Chas. K. Kleiner "A," Sec. 81, Blk. 4, H&TC Sur., 2 mi. N Cisco, flowed 204 bbl. 43.8°-grav. oil a day, 20/64-in. choke, top Mississippi 3,697 ft., gas on drill-stem test 3,708-69 ft., spray oil at 3,910-4,000 ft., perforated casing 4,000-4,014 ft., TD 4,105 ft., tubing pressure 365 psi., casing 730 psi., GOR 482 cu. ft.

NORTH CENTRAL TEXAS (DISTRICTS 9 & 7-B) WILDCAT FAILURES

Archer County: Akin & Dimock 1 Lorena Kinder, Lot 111, Blk. 4, Clark & Plumb Sur., 5 mi. NW Windthorst, dry, TD 5,414 ft., Caddo 5,034 ft., Ellenburger 5,411 ft.

L. T. Burns 1 J. H. Turbeville, Blk. 27, Jefferson CSL Sur., 3½ mi. E Anarene, dry, TD 4,869 ft., Gunsight 1,041 ft., Caddo 4,729 ft.



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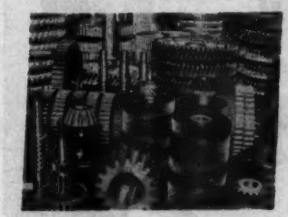
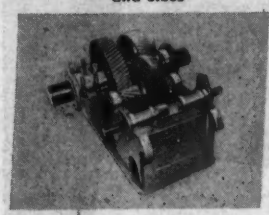


Gears of all types and sizes



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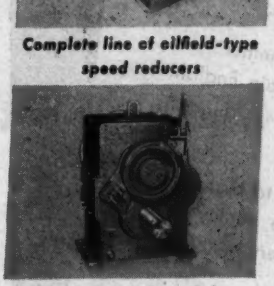

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G. E. Kadane & Sons 1 Leslie Humphrey, E. Heath Sur., 4½ mi. NE Dundee, dry, TD 5,006 ft., Mississippi 4,796 ft., Ellenburger 4,870 ft., recovered oil-cut mud on drill-stem test 4,870-91 ft.

G. F. LeBus 1 Anna Mangold, Blk. 27, P. Castleman Sur., 3½ mi. NW Mankins, dry, TD 4,158 ft., Caddo 4,146 ft.

Reno Oil Co. 1 S. M. Gose, Blk. 8, ATNCL Sur., 6 mi. SW Holliday, dry, TD 3,953 ft.

Star Oil Co. 1 L. W. Kinkle, Sec. 1,593, TE&L Sur., 6½ mi. W Olney, dry, TD 5,118 ft., Caddo 4,500 ft., Mississippi 5,088 ft.

Brown County: W. H. Bryant 1 Brice Harris, S. Sanders Sur., 4 mi. SW Rising Star, dry, TD 2,303 ft., Caddo 2,134 ft.

United North & South Development Co. 1 W. H. Gree, S. T. Allen Sur., 6½ mi. NE Cross Cutt, dry, TD 2,432 ft., Caddo 2,222 ft., elev. 1,658 ft.

A. Varner 1 S. P. Suddath, Sec. 6, BBB&-CRR Sur., 3 mi. N May, dry, TD 3,102 ft., Caddo 2,362 ft.

Callahan County: Tex Harvey Oil Co. 1 George Anthony, Sec. 2, D&DA Sur., 8 mi. N Putnam, dry, TD 3,880 ft., Caddo 3,297 ft., perf. 3,292-3,324 ft., acidized, flowed by heads for 3 hours, died, swabbed 40 bbl. oil in 8 hours, PB 3,310 ft., tested salt water, elev. 1,390 ft.

Coleman County: Claude Bell 1 J. P. McCord, Sec. 6, T&NO Sur., 2 mi. N Glencove, dry, TD 3,754 ft., Gardner sand with oil show 3,499-3,507 ft., Caddo 3,680 ft., elev. 2,115 ft.

Soujourner Drilling Co. 1 Mrs. Eliza Watson, Wm. Mason Sur., 2 mi. N Burkett, dry, TD 3,489 ft., Ellenburger 3,442 ft.

Cooke County: Britton Drilling Co. 1 B. O. Cheaney, J. Steele Sur., 5 mi. NE Gainesville, dry, TD 4,752 ft., show oil 4,615, 4,660 ft., Ellenburger 4,681 ft.

Dalport Oil Corp. 1 E. D. Sark heirs, SPRR Sur., 2 mi. SE Bulcher, dry, TD 2,048 ft. in sand and shale.

K. R. Neal 1 Lena A. Reeves, R. Warner Sur., 10 mi. SE Gainesville, dry, TD 2,962 ft.

Jones County: S. C. Herring 1 J. J. Steele, Blk. 3, Sec. 9, J. A. Altcorn Sur., 12 mi. E Anson, dry, TD 3,370 ft., show oil 2,017-34 ft.

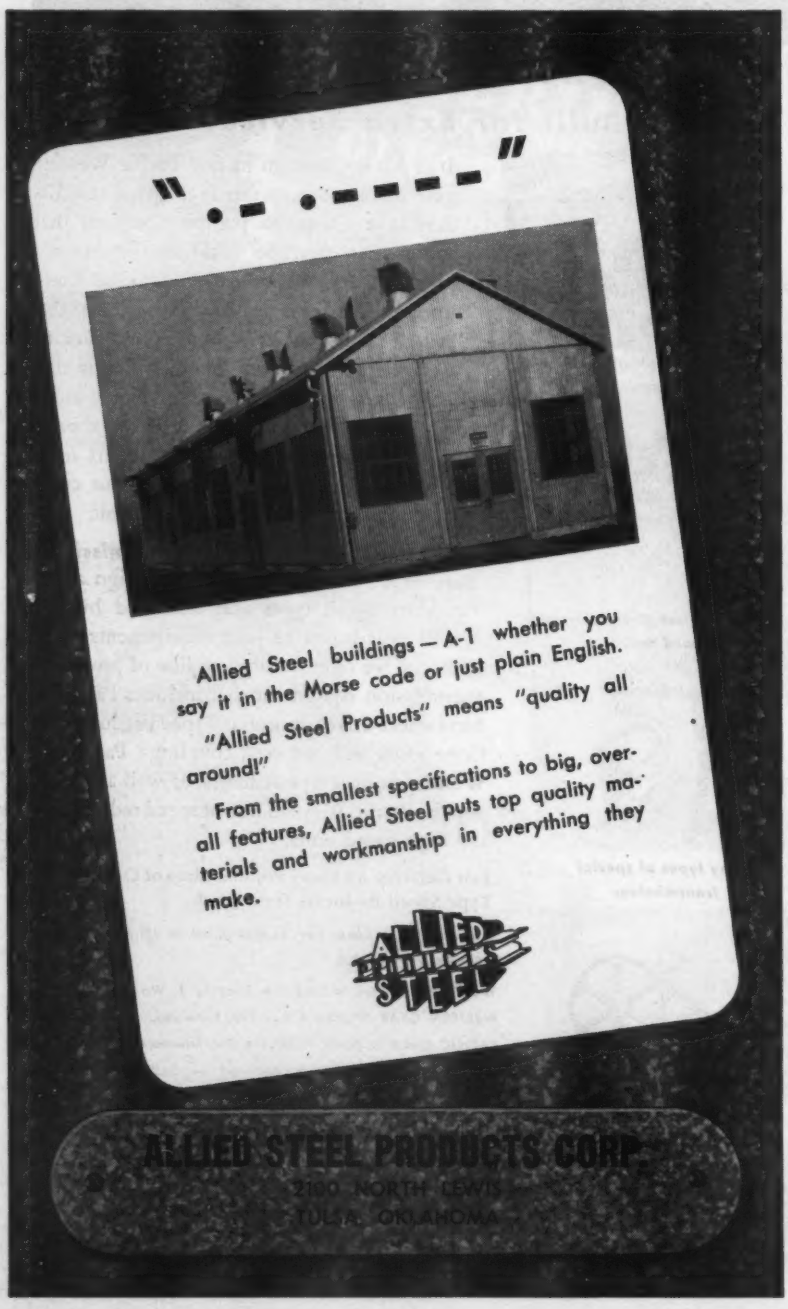
F. Kirk Johnson 1 O. T. Easton, Sec. 39, Blk. 18, T&PRR Sur., SW Noodle, dry, TD 4,304 ft., Flippen sand 2,674-80 ft., limestone 2,685 ft.

Shackelford County: Kadane Griffith Oil Co. 1 DeLafosse "B," Sec. 9, Blk. 8, T&PRR Sur., 12 mi. E Albany, dry, TD 4,512 ft., Palo Pinto 1,760 ft., Caddo 3,604 ft., drill-stem test 3,670-95 ft. oil and salt water, Ellenburger 4,450 ft., PB 3,680 ft., perforated 3,670-75 ft., acidized and swabbed water with small amount of oil, elev. 1,287 ft.

Humphrey Marshall 1 Merrick Davis, Sec. 25, Blk. 12, T&PRR Sur., 7 mi. SW Albany, dry, TD 4,751 ft., Caddo 4,134 ft., Marble Falls 4,500 ft., elev. 1,585 ft.

Stephens County: Texas Pacific Coal & Oil Co. 1 Texas Land Trust "A," Sec. 5, Blk. 5, SPRR Sur., 5 mi. SW Eliasville, dry, TD 4,610 ft., Palo Pinto 1,515 ft., Caddo 3,423 ft., Mississippi 4,559 ft.

Taylor County: West Central Drilling Co. 1 L. N. Brown, Lot 5, Morrison Subd., Jose Gabo Sur., 1 mi. W Tye, dry, TD 2,752 ft., Saddle Creek lime base 2,321 ft., Flippen lime 2,344-85 ft., elev. 1,806 ft.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MISSISSIPPI

Jefferson Test Encounters Shows in Tuscaloosa

JACKSON.—At the Rodney prospect, Jefferson County, The California Co. 1 Heckler-Logan Unit, 6-10n-1w, encountered shows in the lower Tuscaloosa section. Coring was started at 9,448 ft. and first show was encountered in core from 9,458-63 ft., where 4½ ft. of core was recovered with the bottom 6 in. being gas-condensate sand. Core from 9,467-74 ft. recovered 3 ft. of sand with show of oil and 4 ft. of sand with no show. Top of Tuscaloosa Massive sand 9,462 ft. by cores, oil-water contact at 9,470 ft. The core descriptions indicate a total of 5 ft. of gas-condensate sand and 3 ft. of oil sand. Total depth is 9,560 ft. The well is now shut down waiting on orders. Production casing has not been run.

At Mallalieu, Lincoln County, Sun Oil Co. 4 W. H. Summers, NW NW 8-6n-8e, had a total oil section of 59 ft. to total depth 10,528 ft. This is the first well in this northwestern part of the field which had "B" zone sand, which was encountered from 10,432-67 ft. The 5½-in. casing was set at 10,521 ft., and operators are now waiting on cement to set.

The California Co. 1 W. J. Colbert, 21-8n-1w, in Stampley area, Jefferson County, drilled through the Wilcox sand section and is shut down waiting on orders at total depth of 7,300 ft. A gas show was recorded in Sparta sand section from 2,740-75 ft., and slight gas shows in the Wilcox at 4,112 ft. Top of Wilcox 3,197 ft.

One wildcat start was reported in Jefferson County, and four development locations, one each in Langsdale field, Clarke County; Mallalieu field, Lincoln County; Pine Ridge field, Adams County; and Yellow Creek field, Wayne County. One wildcat failure was completed in Copiah County.

MISSISSIPPI WILDCAT FAILURE

Copiah County: R. J. Caraway-J. B. White 1 Mamie Wilson, 6-9n-7e, dry, TD 10,420 ft., Tuscaloosa 9,228 ft., Massive sand 10,202, Lower Cretaceous 10,245 ft.

ALABAMA WILDCAT FAILURE

Clarke County: Hunt Oil Co. 1 Hicks, C

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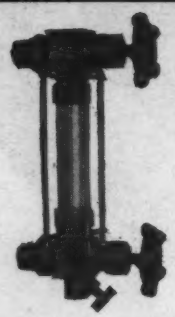

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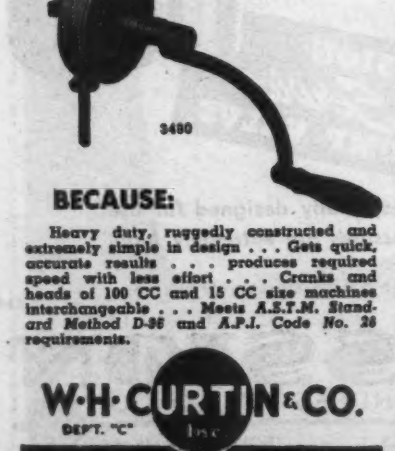

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SE SW 4-9n-1w, dry, TD 5,016 ft., top Wilcox 680 ft., Eutaw 4,330 ft., Tuscaloosa 4,680 ft. (questionable).

FLORIDA WILDCAT FAILURES

Holmes County: S. P. Borden 1 Glen Moore, C SW NW 15-5n-18w, dry, TD 4,912 ft.

Pinellas County: Coastal Petroleum Co. 1 Ed C. Wright, 7-30s-17e, SE cor. of section, dry, TD 11,507 ft.

OKLAHOMA

Possible Pool Opener For Pottawatomie

TARPER-TURNER OIL CO. and Phillips Petroleum Co. have a possible pool opener on the Shawnee sector of northern Pottawatomie County at 1 Youngblood, NE SE NW 11-11n-4e, about 1½ miles northwest of Northeast Shawnee pool. Well had an unconformity sand zone at 4,770-86 ft. and found the Caney at 4,790 ft. A drill-stem test with tool open for 1 hour, made between 4,773 ft. and total depth of 4,870 ft., had gas in 8 minutes and recovered 878 ft. of oil and 60 ft. of oil-cut mud. Gravity of oil was estimated at 35°-37°.

The Payne County discovery, R. J. Caraway 1 School Land, NE NE SE 34-18n-3e, is reported as having an increasing flow of oil with less water. Production is from sandy dolomite through casing perforations at 4,351-66 ft. Late reports indicate well swabbed and flowed 70 bbl. in 12 hours, cut about 4 per cent salt water.

Union Producing Co. 1 G. G. Music, C SW NW 25-10n-21w, Beckham County, is location for new deep test of the area south of Elk City.

Logan County has the first well drilled for oil using reinforced centrifugal-spun concrete surface casing. The well, Charles E. Knox and J. F. Smith 1 Michel, C SW SW 9-19n-3w, has been drilled to 4,576 ft. The novel type surface casing was run to 250 ft.

Stanolind Oil & Gas Co. and Mercury Drilling Co. have a good oil well at the edge of Witcher pool at 1 Cullen Unit, NW NW NE 36-13n-3w, Oklahoma County. Well flowed 27 bbl. per hour from the Hunton and has been shut in for storage.

OKLAHOMA SUCCESSFUL WILDCATS

Cotton County: Whisnand 1-A State, NE SW NW SE 16-2s-11w, gaged 1,062,000 cu. ft. of gas per day from sand and sandy shale at 1,962-73 ft., TD.

Lincoln County: Smith 1 Jones, NW NW SE 35-12n-3e, flowed 35 bbl. of oil per day by heads from 4,930-36 ft. and 4,936-47 ft. (basal Pennsylvanian and unconformity), TD 5,014 ft.

Logan County: Feagin 1 Noble, SE SE SW 20-16n-3w, flowed 153 bbl. of 43.6°-gravity oil per day from Red Fork at 5,760-72 ft., through 18/64-in. tubing choke, TD 6,301 ft.

OKLAHOMA WILDCAT FAILURES

Cotton County: Slemaker 1 Crowell, SE SW NE 7-3s-9w, dry, TD 2,167 ft., sand 770-80 ft., 1,667-95 ft. and 2,040-58 ft., no shows.

Ross 1 Armstrong, NE NE NW 12-4s-12w, dry, TD 2,015 ft., no shows.

Garvin County: Tharpe 1 Moore, NE SE NW 32-4n-1w, dry, TD 5,202 ft., no tops reported.

Hughes County: Maguire 1 Norvell Royalty, NW NW SW 3-5n-8e, dry, TD 3,334 ft., no tops reported.

Jefferson County: Woods 1 Burr-Jones, NW NE NE 28-4s-4w, dry, TD 7,010 ft., basal Pennsylvanian-Simpson 6,600 ft.

Woods 1 Wilson, SW SE SE 11-7s-4w, dry, TD 4,964 ft., no tops reported.

Okfuskee County: Dunn 1 Jimboy, NE NE SW 36-11n-10e, dry, TD 2,047 ft., no tops reported.

ILLINOIS

Barnhill Pool Gets Good Extension

MATTOON.—Barnhill pool in Wayne County will be extended ½ mile by production at Central Pipe Line Co. 1 A. J. Bose, SE SE SE 28-2s-8e, where operator has set casing for tests of Aux Vases sand and McClosky limestone. A 1-hour drill-stem test of the Aux Vases at 3,304-42 ft. had gas in 9 minutes and recovered 2,040 ft. of oil and 540 ft. of oil-cut mud with no water. The McClosky show was on a 1-hour test of zone at 3,452-62 ft. which had a recovery of 1,740 ft. of oil, 180 ft. of oil-cut mud, and 150 ft. of salt water. The well also had a slight show of oil in the Rosiclare.

The second Silurian limestone well in McKinley pool is making a better show than the first. W. C. McBride 1 Vern Frieman, NW SW NE 29-3s-4w, Washington County, is flowing 21 bbl. per hour from pay at 2,232-83 ft. The well has not been acidized.

John L. Neary has started a north offset to the pool opener 1 Charles Henke, Madison County. The new well, Neary 2 Henke, NW SW SW 17-6n-6w, had been spudded on location just north of the discovery well that was completed for 150 bbl. per day from Pennsylvania sand at 528-35 ft.

ILLINOIS SUCCESSFUL WILDCAT

Madison County: John L. Neary 1 Charles Henke, SW SW SW 17-6n-6w, IP 150 bbl., Pennsylvania sand, 528-35 ft., TD 536 ft.

ILLINOIS WILDCAT FAILURES

Clinton County: W. R. Kuykendall 1 Michaels, NE NW SW 32-2n-1w, dry, TD 1,528 ft.

Crawford County: Reward Oil Co. 1 Tracy,

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NE SW NE 17-8n-13w, dry, TD 1,201 ft.
Edwards County: A. J. Slagter, Jr., 1 L. J Cohn, NW NW SE 32-1n-10e, dry, TD 3,412 ft.
Hamilton County: Indiana Farm Bureau 1 C. H. Allardin Heirs, NW NW SE 9-6s-6e, dry, TD 3,275 ft.
Jefferson County: Paul Doran 1 V. G. Garren, SW NE NW 33-1s-2e, dry, TD 2,318 ft.
Madison County: Perry Fulk 1 Mann, SW NW SE 16-3n-8w, dry, TD 2,030 ft.
Richland County: Sohio Petroleum Co. 1 Meadows, SW NW NE 11-4n-10e, dry, TD 3,120 ft.

PERMIAN BASIN

Scurry Test Not to Drill to Ellenburger

MIDLAND.—Sun Oil Co. is to complete its southwest Scurry County Canyon limestone (Pennsylvanian) discovery from that section, and will not drill to the Ellenburger as originally planned, according to reports. Its 1 Emil Schattel, 1,980 ft. from south and west lines of Section 186, Block 97, H&TC Survey, 7 miles southwest of Snyder, flowed 149 bbl. of 44.2°-gravity oil in 7 hours through ½-in. choke on bottom and ¼-in. top opening, from open hole between 6,858 ft. and 6,891 ft., total depth. At that rate its daily potential would be better than 500 bbl. There was no water with the oil and gas-oil ratio was 320 cu. ft. The formation had not been acidized. Pressure on tubing during the test was 500 to 625 psi. The well was said to have a saturated limestone section from 6,815-50 ft. Seven-inch casing is set to 6,858 ft.

Sun has already made locations for two offsets. The 2 Schattell is ½ mile north and ½ mile east of the discovery, in the same section. No. 3 Schattell is located ½ mile east and ¼ mile south of the discovery, of the same section. Both tests are to the Canyon limestone.

D. D. Feldman et al 1 Max Pray-State, Upton County wildcat northwest of Benedum, was apparently a failure in the Ellenburger, although operators were to run another test after making 9 ft. more hole, to total depth of 11,954 ft. It was said that production is seldom found in the Ellenburger below sulfur water and it has been pointed out that water production in the Benedum discovery was considered due to the high-pressure gas, and not formation water. It has also been pointed out that while the Alford well was some 1,100 ft. in the Ellenburger, the Pray-State well is in the formation 569 ft., based on the top at 11,355 ft. The Pray-State is correlated 480 ft. lower on the Ellenburger than the 1 Alford.

The 1 Max Pray-State ran a 2-hour drillstem test on open hole between 7-in. casing at 11,807 ft. and 11,945 ft., with packer set at 11,785 ft. Total recovery was 2,000 ft. of water blanket, 480 ft. of drilling mud, 180 ft. of slightly gas-cut mud, 1,260 ft. of heavily gas-cut mud, and 5,710 ft. of gas-cut salt water with no shows of oil.

Other tests in the area were Slick-Urschel Oil Co. 1 Standifer, southwest offset to the Benedum discovery, which was drilling below 11,176 ft. in the Ellenburger, topped at 11,064 ft., or almost level with the discovery. No tests have been made of the formation.

Plymouth Oil Co. 1 Wallace, northeast offset, was drilling below 10,095 ft. in the Devonian. Same operators' 1 Taylor & Sadler, southeast offset, was in the Devonian at 10,150 ft.

Humble Oil & Refining Co. 1 Rosa Halff Barnett, Section 4, Block Y, GC&SF Survey, 3 miles north and slightly west of the field, was drilling at 11,512 ft. in unidentified limestone.

Two miles north of the field, Republic Natural Gas Co. 1-E-A Barnett, Section 40, Block Y, GC&SF Survey, was below 10,335 ft. in Pennsylvanian shale.

About 1½ miles northeast of the Benedum well, but in Reagan County, Plymouth 1 Elliott was drilling in limestone at 4,938 ft. Wilshire Oil Co. 1 McElroy Ranch Co., in western Upton County, was drilling in limestone at 12,423 ft. No details were available on tests or the formation. Seven miles west and slightly north of Benedum, Richardson & Bass 1 Neal, Section 9, Block Y, GC&SF Survey, was below 8,384 ft. in lime and shale.

First reports of locations totaled 75 for the past week, 66 field tests and 9 wildcats. New wildcats, by counties, were: Andrews and Mitchell two each, and one each in Cochran, Gaines, Hockley, and Terry. Counties gaining new field wells were: Crane 11, Ector and Hockley 10 each, Andrews 9, Hale 7, Pecos 4, Cochran 3, and 1 each in Gaines, Howard, McCulloch, Reagan, Scurry, Sterling, Winkler, and Yoakum. Week's completions were 49 oil wells and 17 dry holes, including 3 completed wildcat discoveries and 7 wildcat failures.

WEST TEXAS (DISTRICTS 8 & 7-C) SUCCESSFUL WILDCATS

Cochran County: Seaboard Oil Co. 1 F. O. Maston, Lbr. 18, Lge. 152, Randall CSL Sur., 8 mi. SE Bledsoe, pumped 184.6 bbl. 31.5°-grav. oil a day, San Andres 4,923-5,001 ft., GOR 650 cu. ft., TD 5,133 ft.
Crane County: Standard Oil Co. of Texas 1 Hattie A. Reynolds, Sec. 22, Blk. 3, H&TC Sur., 5 mi. N Abell field, flowed 860 bbl. 39.9°-grav. oil a day, ⅜-in. choke, Waddell sand 5,831-37 ft., TD 5,869 ft., GOR 640 cu. ft., casing pressure 1,000 psi., tubing 600 psi., completed natural, elev. 2,456 ft.
Hockley County: Honolulu Oil Corp. 1-A Ellwood Estate, Sec. 12, Blk. A, R. M. Thompson Sur., 3½ mi. N Smyer, swabbed 236 bbl. 34°-grav. oil a day, Glorietta 5,875-6,014 ft., TD GOR 400 cu. ft., elev. 3,427 ft.

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WEST TEXAS (DISTRICTS 8 & 7-C)
WILDCAT FAILURES

Culberson County: H. W. Little 1 J. H. Fisher, Sec. 18, Blk. 111, PSL Sur., 23 mi. SW Orla, dry, TD 2,206 ft. in lime, Delaware sand 1,848 ft., bailed 8 bbl. oil-cut water in 3 hours after shut in 12 hours, show oil 1,096-1,105 ft., elev. 3,428 ft.

Pecos County: Magnolia Petroleum Co. 2 Eaton, Sec. 29, Blk. 3, H&TC Sur., 3 mi. NE Pecos Valley field, dry, TD 2,092 ft., small amount of oil at 2,091 ft.

Magnolia Petroleum Co. 1 Eaton, Sec. 33, Blk. 3, H&TC Sur., 8 mi. SW Imperial, dry, TD 2,187 ft.

Stanolind Oil & Gas Co. 8-B University, Sec. 13, Blk. 18, University Lands, deep test in Taylor-Link field, dry, TD 4,433 ft., recovered some black oil, 25° grav., from sand 3,938-4,008 ft., top San Andres 1,600 ft., elev. 2,552 ft.

Reeves County: Hill & Hill 1 Hankins, Sec. 46, Blk. 56, T&P Sur., 1 mi. N Tunstill field, dry, TD 3,420 ft., Delaware sand 3,264 ft., had slight show of oil.

Runnels County: E. S. Price 1-A Huddlestone, Sec. 26, Day Land & Cattle Co. Sur., 3½ mi. NE Ballinger, dry, TD 3,660 ft., swabbed 12 bbl. oil plus 30 per cent salt water from perf. 3,620-48 ft. in Strawn.

SOUTHEASTERN NEW MEXICO

HOBBS.—Richfield Oil Corp. 2 Comanche Unit, 13 miles east of Roswell in 24-11s-26e, had total depth at 6,330 ft. in dolomite and was preparing to run casing. Cores from 6,246-71 ft. recovered 25 ft. of fine, crystalline dolomite, bleeding oil and water in spots.

W. H. Black Drilling Co. 1 Shildneck, 24-16s-20e, Chaves County, was drilling below 7,001 ft. in green shale and sand. It topped the Montoya section at 6,000 ft., Ellenburger at 6,350 ft., and the Bliss sand, which showed some porosity and staining, at 6,650 ft. A drill-stem test may be run on the latter section.

Magnolia Petroleum Co. 1-W State, SW SE 16-21s-22e, 28 miles northwest of Carlsbad, was moving in cable tools to test above plugged-back depth of 2,360 ft. The well had an unusually thick section believed to be Ellenburger dolomite, but had no shows of oil or gas. It had the Bliss sand from 11,115-11,235 ft., pre-Cambrian at 11,305 ft., and top of the Ellenburger at 10,560 ft. Total depth was 11,312½ ft., corrected.

Skelly Oil Co. 1 U. D. Sawyer, NE NE 33-9s-36e, ¾-mile southwest offset to the Cross Roads discovery, was drilling below 5,180 ft. A drill-stem test in the San Andres at 4,865-4,960 ft., open 3 hours, recovered 1,170 ft. of drilling mud, 270 ft. of slightly oil-cut drilling mud and 360 ft. of sulfur water.

Ralph Lowe 1 Skelly-State, 22-12s-34e, drill-stem tested the San Andres at 4,834-4,900 ft. The tool was open 65 minutes, recovering 90 ft. of drilling mud, with no shows. It was drilling ahead below 5,332 ft.

Texas Pacific Coal & Oil Co. 39-A State, Account 2, 9-22s-36e, deep operation in the South Eunice area, was last reported below 10,100 ft. in limestone. It was said to check some 1,500 ft. low to Skelly 1 Steeler, several miles to the east, correlated on base of the Permian which was picked from samples at 9,040 ft.

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KANSAS

Prospective Pool Opener For Rooks County

IN northwestern Rooks County, Cooperative Refinery Association has drilled plug at 1 Harlan, SE NE NW 5-7s-19w. Following acid treatment with 500 gal., well had a fillup of 50 ft. per hour. Production is from the Arbuckle, topped at 3,474 ft., and total depth is 3,480 ft. Preparations are being made to shoot the hole and reacidize. The well is about 5 miles northeast of Alcona pool where production is also from the Arbuckle.

Palmer Oil Corp. has completed 1 Stump, NE NE SE 3-17s-12w, 2 miles south of South Beaver pool in Barton County. Well was completed with a potential of 182 bbl. from the Arbuckle, topped at 3,320 ft. Hole was bottomed at 3,328 ft. and acidized.

The central portion of Barton County in the area southeast of Eveleigh pool has had one recent pool opener and two other exploratory tests that are showing for good prospects.

The opener of the Homestead pool was Raymond Gear et al 1 Eveleigh, SE SW NE 22-18s-13w, completed in the Arbuckle for 35 bbl. per day.

In the next section, Texas Co. 1 Trester, SW SW SW 21-18s-13w, is swabbing at the rate of about 60 bbl. per day from the Arbuckle, topped at 3,368 ft. Well was drilled to 3,389 ft. and acidized.

Sohio Petroleum Co. et al 1 Yeakley, NW NW NW 17-18s-13w, in the area between the other wells and Eveleigh pool, swabbed 4 bbl. per hour for 16 hours from the Arbuckle. Total depth is 3,324 ft. with the Arbuckle called at 3,317 ft.

For the week, a total of 72 new locations were reported. Barton County was far in front with 18 new spots. Rice and Russell counties had nine each. Rooks had eight and Butler had six.

KANSAS SUCCESSFUL WILDCATS

Barton County: Gear et al 1 Eveleigh, SE SW NE 22-18s-13w, pumped 24 bbl. of oil per day from Arbuckle; anhydrite 715 ft., lime 3,060 ft., Arbuckle 3,307 ft., TD 3,348 ft.

Cowley County: Meade Prod. 1 McMichael, NW SE SW 35-33s-3e, produced 20 bbl. of oil per day from Bartlesville; Layton 3,677 ft., Kansas City 2,877 ft., Bar-

tiesville 3,282 ft., Mississippian 3,386 ft., TD 3,398 ft.

Stafford County: J. M. Huber 1 Symns, NE NE SE 28-22s-14w, flowed 145 bbl. of oil per day from Lansing; Heebner 3,368 ft., basal Kansas City 3,742 ft., conglomerate 3,815 ft., Viola 3,831 ft., Simpson 3,885 ft., Arbuckle 3,938 ft., TD 3,945 ft.

KANSAS WILDCAT FAILURES

Barton County: Hartman 2 Powell, NE NE NW 1-20s-13w, dry, TD 3,477 ft., basal Kansas City 3,389 ft., conglomerate 3,410 ft., Arbuckle 3,437 ft.

McPherson County: Delta & Quaker Drilling 1 Babcock, SW SW NE 35-18s-2w, dry, TD 3,006 ft., conglomerate 2,956 ft., Burgess 2,958 ft., Mississippian 2,979 ft.

Rice County: Dozier 1 Hildebrand, SW NW NE 11-20s-10w, dry, TD 3,311 ft., lime 2,016 ft., basal Kansas City 3,294 ft., Simpson 3,299 ft., Arbuckle 3,309 ft.

Russell County: Hunt Estate 1 Hartman, C N/2 NW NW 36-11s-15w, dry, TD 3,491 ft., anhydrite 865 ft., Topeka 2,663 ft., Heebner 2,909 ft., Dodge 2,928 ft., lime 2,961 ft.

Sedgwick County: Gaty 1 Schramm, SE NE NE 18-26s-2e, dry, TD 3,018 ft., Kansas City 2,545 ft., Mississippian 3,007 ft.

TEXAS GULF COAST

Jefferson County Gets New Oil Field

HOUSTON.—A new oil field for Jefferson County has been opened south of Lovell Lake field by James F. Morse & Co. 1 Wallace Talbot, in James McNabb Survey, Block 2, 6,400 ft. south of Lovell Lake field production and on the south side of Hildebrandt's Bayou. Operators call the new well "Hildebrandts Bayou" discovery. Drilled to a total depth of 9,508 ft., the well flowed on potential gage 166 bbl. of 39.4°-gravity oil per day through an 8/64-in. choke with 1,225 psi. flowing pressure on tubing, and gas ratio of 742. Production is through perforations at 7,759-61 ft.

Jack W. Frazier 1 Lillie O. Hurlock, potential discovery well in the Iowa Colony area of Brazoria County, has been delayed in new tests due to mechanical trouble. The well came in and was cleaning through perforations at 9,090-9,115 ft. at the rate of 20 bbl. hourly through a ¼-in. and 9/32-in. choke with 650 psi. pressure, but started making shale, mud, and sand and died. Tubing pulled in two when operators started to pull.

A new oil sand for Humble field, Harris County, has been opened by Wilson Oil Co. 17 R. E. Burt, in the J. B. Stevenson Survey. Total depth is 3,192 ft., and top of sand at 3,146 ft. On potential test the well flowed 145 bbl. of oil per day through an 11/64-in. choke, gas-oil ratio 250, gravity 22.3°. Production is through perforations at 3,146-56 and 3,179-84 ft.

The 43 new locations reported for Districts 2 and 3 included 12 wildcat starts, 2 in Galveston, and 1 each in Brazoria, Jackson, Jefferson, Javaca, Montgomery, Orange, San Jacinto, Victoria, Wharton, and Wilson counties. Three exploratory tests were successful, opening one new oil pool in Jefferson County, and two oil sands, one each in Boling, Fort Bend County; and Humble field, Harris County. Seven wildcats were dry, one each in Austin, Chambers, Fort Bend, Goliad, Lavaca, Live Oak, and Refugio counties.

TEXAS GULF COAST (DISTRICTS 2 & 3) SUCCESSFUL WILDCATS

Fort Bend County: New oil sand Boling dome—British-American Oil Producing Co. 1 J. M. Moore, in Chas. A. Bettner Sur. A-11, on north flank of Boling dome, TD 4,180 ft., top sand 3,704 ft. in Frio, perforations 3,762-69 ft., IP 114 bbl. oil per day through ⅛-in. choke, GOR 185, TP 340 psi., grav. 23°, no water. Completed June 23, 1948.

Harris County: New oil sand Humble field—Wilson Oil Co. 17 R. E. Burt, in J. B. Stevenson Sur., top sand 3,146 ft., TD 3,192 ft., perf. 3,146-56 ft. and 3,179-84 ft. IP: 145 bbl. oil per day through 11/64-in. choke, GOR 250, grav. 22.3°, no water. Completed June 27, 1948.

Jefferson County: New oil pool, Hildebrandts Bayou—James F. Morse & Co. 1 Wallace Talbot, in Jas. McNabb Sur., Block 2, 6,400 ft. south of Lovell Lake field production, TD 9,508 ft., top sand 7,750 ft., perf. 7,759-61 ft., IP: 166 bbl. oil per day through an 8/64-in. choke, GOR 742, TP 1,225 psi., gravity 39.4°, no water. Completed June 28, 1948.

TEXAS GULF COAST (DISTRICTS 2 & 3) WILDCAT FAILURES

Austin County: Butcher-Arthur, Inc., 1 Walter Schneider, in James Cummings Hacienda Sur., A-31, 5 mi. SSW of Bellville townsite, dry, TD 9,073 ft.

Chambers County: Peeler Brothers 1 E. E. Barrow, in S. Barrow Sur., 1 mi. S of South Cotton Lake production, dry, TD 6,810 ft.

Fort Bend County: Barnsdall Oil Co. 1 R. W. Sharpe, in Chas. D. Sayne Lge., 5 mi. NW of Long Point and 4 mi. W of South Thompson field production, dry, TD 8,225 ft.

Goliad County: Ginther, Warren & Ginther 5 Carrie G. Wood et al, in Sarco area, Caleb Bennett Sur. 5, dry, old TD 5,500 ft., new TD 5,018 ft., in sidetracked hole.

Lavaca County: Union Prod. Co. 2 Wm. Borchers, in Albert Elgin Sur., 2 mi. NW of Jackson-Lavaca Co. line, dry, TD 2,304 ft.

Live Oak County: Houston Oil Co. of Texas 2 Kittie West Schreiner, in Samuel Vanover Sur., Kittie West area, 5 mi. WNW of Geo. West, dry, TD 7,550 ft.

Refugio County: Edwin B. Cox & Jake L. Hamon, 1 Frank Bitters, in J. M. Aldrete grant, 7 mi. SE of Woodsboro, 3½ mi.

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SE of La Rosa field, and 3½ mi. S of Bonnie View field, dry, TD 6,780 ft.

SOUTHWEST TEXAS

Duval Discovery Producing 15 Bbl. Per Day

CORPUS CHRISTI.—Cam Corp. C-1 Rogers, oil-discovery well for the new "El Mesquite" gas field in the extreme southwest corner of Duval County, is reported producing an estimated 15 bbl. of oil per day from open hole at 3,023-44 ft. on initial production test. Total depth is 3,044 ft. and 6⅝-in. casing is set to 3,023 ft. The well is in the El Mesquite Grant, 6 miles northwest of Hebbronville, and is 797 ft. southeast and 250 ft. southwest of the 3 Olson, gas-discovery well in this area.

A new oil-producing sand has been opened at Coastal field in Starr County, by Coastal Refineries, Inc., and W. D. Kennard B-2 Luis Pena. On potential test the well gaged 93.84 bbl. per day through a ⅛-in. choke, making clean 40.5°-gravity oil with no water, tubing pressure 300 psi., and casing pressure 400 psi. Gas-oil ratio was 225. Total depth is 6,003 ft., with production through perforations at 3,548-54 ft. Top of sand at 3,548 ft. This well is in Share 147 of Porcian 38, 933 ft. east of the B-1 Pena discovery well, 2 miles north of Sam Fordyce field.

Production at the Sun field, Starr County, has been extended ½ mile southward. Sun Oil Co. D-1 Geo. H. Speer-State, in CCSD&RGNG Survey 274, was completed for a potential gage of 72.4 bbl. per day through a 4/64-in. choke, with gas-oil ratio 850. Production is from open hole at 4,713-25 ft. in sand topped at 4,717 ft. Total depth is 4,725 ft., and 5½-in. casing set to 4,713 ft. Gravity is 46.5°.

There were 47 new locations reported for Districts 1 and 4, with 16 being wildcat starts, 5 in Duval, 2 each in Hidalgo and Webb, and 1 each in Atascosa, Caldwell, Kenedy, Kleberg, Starr, and Willacy counties. Three successful exploratory wells were completed, opening a new pool in Duval, a new oil pay in Starr County at Jay Simmons pool, and Sun pool in Starr County was extended southward. Eleven wildcats were completed dry, one each in Atascosa, Bastrop, Brooks, Caldwell, Cameron, Frio, Guadalupe, Kenedy, McMullen, Starr, and Travis counties.

SOUTHWEST TEXAS (DISTRICTS 1 & 4) SUCCESSFUL WILDCATS

Duval County: New oil pool—Magnolia Pet. Co. B-1 Drought, in J. L. Saenz Sur. 156, 13 mi. NW of Freer, about 1½ mi. NW of Charamousca field and 1 mi. NE of "Charamousca-Wilcox" discovery, TD 3,017 ft., top sand 2,064 ft., perf. 2,064-67 ft., IP: 54 bbl. oil net on pump, no gas, grav. 32.9°, 80 per cent water. Completed June 20, 1948.

Starr County: New pay sands (dual completions) Jay Simmons (North La Reforma) field—Sunray Oil Corp. 1 Dr. Jose G. Garcia, in Santa Cruz Grant, TD 6,505 ft., dual completion, top sand 6,123 ft., perf. 6,128-35 ft., IP: 115 bbl. oil per day through 5/32-in. choke, GOR 1,080, CP 500 psi., grav. 35°, no water. Top sand 6,190 ft., perf. 6,192-6,202 ft., IP: 107 bbl. oil per day through 4/64-in. choke, GOR 676, TP 250 psi., grav. 36.7°, no water. Completed June 23, 1948.

Extension to Sun pool—Sun Oil Co. D-1 Geo. H. Speer-State, in Geo. W. Speer Sur. 274, TD 4,725 ft., top sand 4,717 ft., open hole 4,713-25 ft., IP: 72 bbl. oil per day through 4/64-in. choke, GOR 850, TP 150 psi., CP 425 psi., grav. 46.5°, no water. Completed June 29, 1948.

SOUTHWEST TEXAS (DISTRICTS 1 & 4) WILDCAT FAILURES

Atascosa County: McCabe & Pegg Bros. 2 Leonora Galindo et al, in F. de la Garza Sur. 46, 9 mi. W of Poteet, dry, TD 2,349 ft.

Bastrop County: M. M. Miller et al 1 W. M. Wilhelm, in N. W. Eastland Sur., 15 mi. SW of Bastrop, dry, TD 4,428 ft. Top Edwards lime 4,158 ft.

Brooks County: Curtis Singleton Drlg. Co. 1 Jack Casey, in J. T. Maupin Sur. 630, A-401, 4 mi. SE of old Alta Verde field, dry, TD 7,010 ft.

Caldwell County: Porter, Drews, Grace & Grace 1 Jim Ferguson, in James S. Montgomery Sur. A-185, 3½ mi. N of Lytton Springs, 2 mi. SE of Travis County line, dry, TD 1,646 ft. Top Austin chalk 1,100 ft., top Edwards lime 1,548 ft.

Cameron County: Hunt Oil Co. 1 Stambaugh & Messmer, in Block 296, Stuart Place Subd., 5 mi. SW of Harlingen, dry, TD 10,530 ft.

Frio County: W. L. Pickens 1 J. D. Oppenheimer et al, Henry Castro Sur. 46, 10 mi. SE of Pearsall, dry, TD 5,139 ft.

Guadalupe County: J. D. Thompkins 1 L. C. Koepp, in Vicente Duran Sur. 23, 2 mi. SW of New Berlin, dry, TD 803 ft.

Kenedy County: Sun Oil Co. A-1 D. J. Sullivan, in Jose Antonio Leal Gr. A-61, 16 mi. SE of Falfurrias, dry, TD 9,043 ft.

McMullen County: Stanolind O. & G. Co. 1 G. W. Henry, in J. B. Taylor Sur. 38, A-638, 5 mi. NW of Tilden, dry, TD 14,046 ft., stuck drill pipe at 14,046 ft., unable to recover all of pipe.

Starr County: Continental Oil Co. 4 Dee

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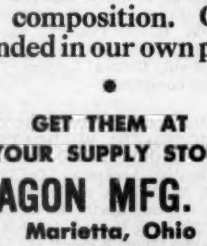

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Davenport et al, in Sur. 532, 2½ mi. SE of Rincon field, dry, TD 5,005 ft.

Travis County: E. R. Marts 1 Eppright Hrs., in Oliver Buckman Sur., 3 mi. S of Manor, dry, TD 1,320 ft.

ROCKY MOUNTAIN

Good Producer Indicated in Uintah County, Utah

DENVER. — Possibility of a commercial producer in northeastern Utah is indicated in Carter Oil Co.'s fourth test of its Vernal Unit, Uintah County. The well made 3,700,000 cu. ft. of gas with an oil spray in 25 minutes and 156 ft. of 30°-gravity oil on 1 hour drill-stem test at 7,077-89 ft. The operator has run casing for further tests of this zone. Top of the Wasatch was found at 7,070 ft. and cores between 7,071-79 ft. showed 6½ ft. of sand, with the bottom 2 ft. oil saturated and the balance gas sand. On drill-stem test between 7,068-79 ft., open 40 minutes, the well immediately made gas at an estimated rate of 5,600,000 cu. ft. daily. There was an oil spray in 25 minutes and the operator recovered 30 ft. of oil. Cores between 7,079-89 ft. showed 46 in. of saturated sand and 32 in. of green shale. The well was then cored to 7,100 ft. and 7 ft. of sand with faint gas odor was recovered. Bottom-hole shut-in pressures were 2,500 lb. and flowing pressure 1,100 lb. on the test. The well is 1 Ruth Nelson, C SE SW 33-5s-21e, on the southeast side of the 57,500-acre block assembled by Carter 4 years ago. The block was unitized in 1946 and Carter started on a five-well wildcat program. The first well, located in the C NW NW 33-4s-20e, was abandoned at 8,001 ft., total depth, in 1947, after thoroughly testing all sands encountered. Each of the wells had shows of oil and gas, but did not prove commercial. This play is based on stratigraphic trap possibilities of beds against the Unita uplift, extending east and west on the north side of the Uinta basin.

Saturation was found in the Leo on the Pacific Western Oil Co.-National Associated Petroleum Co. wildcat in the Bridge Creek area, Niobrara County, Wyoming, but the well tested water. The well is 1 Grimes-State, SE SW NW 16-39n-61w, and topped the third Leo at 4,526 ft. On drill-stem test at 4,524-35 ft. the well made 1,035 ft. of sulfur water in 20 minutes. The operator is drilling ahead. This well is located northeast of the Lance Creek-Little Buck Creek area on a block held jointly by the two companies. Additional drilling on the block is planned even though the present test may be dry.

Limits of Worland field, Washakie County, Wyoming, may be defined in the Embar in Pure Oil Co.'s deepening of its Well 4 Unit, C SW NE 1-48n-93w. The well found the Embar at 10,589 ft. and it is reported on drill-stem test at 10,589-10,654 ft. the well made 400 ft. of gas-cut mud and a slight amount of gas but no water. This well was drilled to the Frontier at 8,091 ft., total depth, 2 years ago. When that formation was found low structurally the well was suspended indefinitely at that depth. Recently Pure moved in rotary and has deepened the well to the Embar. Pure now has six wells producing in the Embar in this field.

Casing has been cemented by British-American Oil Producing Co. on its wildcat test at Longs Creek, Fremont County, Wyoming, and the operator will now deepen the well in the Tensleep. The well found the Tensleep at 5,644 ft. and saturation was logged in the top of the sand. On drill-stem test a week ago the well made some oil and gas in the Tensleep formation and previous tests in the Phosphoria (Embar) showed gas in that formation. British-American has a block of approximately 4,000 acres in the area and did considerable seismic work before locating the well. The test is 1 Government, C NW NE 5-31n-94w.

Bad roads and other delays have interfered with tank construction on the Bay Petroleum Co. Lodgepole wildcat in Weston County, Wyoming, and no production gages have been made on the well. It is expected that these tests will be completed soon, and estimates of production, based on drill-stem tests, have been as high as 1,000 bbl. of oil daily. Recovery of oil in this well 3 weeks ago caused a very heavy leasing play throughout the entire eastern side of the Powder River Basin.

Continental Oil Co.'s new discovery at Taylor-Sussex, on the west side of the Powder River basin at Well 1 Coles, NW NW SE 17-42n-78w, is now flowing more than 14 bbl. of 39°-gravity oil per hour from the Lakota formation. This well was an important discovery north of Salt Creek field and found Lakota at 7,698 ft., with total depth at 7,726 ft. Another well is planned on the structure immediately.

New locations.—A total of 30 new locations were made, with 23 of the wells in Wyoming, 1 in Colorado and 6 in Montana. In Wyoming location has been made by Stanolind Oil & Gas Co. for a wildcat on the Spread Creek structure at 1 Leisure, CEL NE NW 25-44n-113w, Teton County, and Carter has made location for 1 Neher, SE NE SE 6-42n-113w, in the Red Hills area. The Stanolind test is expected to go below 8,000 ft. for a test of the Tensleep, and Carter's well will find Tensleep at shallower depths. These wells are of importance as the first exploratory drilling ever conducted in the Jackson Hole area of western Wyoming. Geological and leasing work has been conducted by several major operators in the area for the past 5 years. Of interest as a rework project for the San Juan basin of Colorado is the Western Natural Gas, Byrd-Frost, and Paul English 1 MacIntosh, C NW NW 25-36n-18w, recently suspended at 4,965 ft., total depth. The operators are moving in to retest gas zones encountered at approximately 1,500 ft. The well crossed a fault at 4,600 ft. and went into igneous rocks. The company has completed its 1 Schmidt on this structure as a shut-in carbon dioxide gas well. Two interesting locations have been made in Montana for extension tests. Both wells are The Texas Co.'s. Well 1 Hornung, NW NW SE 2-11n-29e, Ragged Point, Musselshell County, is 3½ miles northwest of the closest producer on the structure. Texas has drilled two producers and three dry holes on this structure since discovery of oil in the Kibbey sand early this year. At Big Wall, where Texas is now completing a small discovery in the Kibbey, the company has made location for 2 Northern Pacific Railroad, SW NE NW 19-10n-27e, Musselshell County. This well is a west offset to the discovery.

Completions. — Thirty wells were completed, with a total daily initial of 4,636 bbl. of oil. Completion by Sinclair Wyoming Oil Co. of its Cambrian discovery in Lost Soldier field, furnished the Rocky Mountains with its first Cambrian forma-

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tion production. The well topped the Cambrian at 5,475 ft., found saturation at 5,965 ft., with the best pay between 5,985-6,026 ft. Casing was cemented at 5,965 ft. and the well flowed 720 bbl. of oil per day after acidizing the section with 2,000 gal. The well was drilled to 6,288 ft., total depth. This brings to a total of 11 the producing formations in Lost Soldier field, and recent new pay discoveries were made in the Embar and Madison zones in the field. Sinclair is now conducting a development drilling program for the three new producing horizons. In the Greasewood Dome area of Albany County, Wasatch Oil Co. (Phillips) has plugged a Casper formation wildcat at 2,392 ft., total depth. In Montana, British-American has abandoned its wildcat test of the Box Elder Dome in Petroleum County. The well found the Ellis at 1,010 ft. and was abandoned at 1,068 ft., total depth. This well is located on the Cat Creek anticline, northwest of Cat Creek fields. Other wells were pool completions in the three states.

WILDCAT FAILURE IN WYOMING

Greasewood Dome, Albany County: Wasatch Oil Co. 1-25 Swan Land & Livestock, NE NW NE 25-24n-76w, 2,392 ft. TD, abnd., Morrison 500 ft., Sundance 743 ft., Chugwater 1,060 ft., Casper 2,020 ft. Elev. 6,967 ft., ground.

WILDCAT SUCCESS IN WYOMING

Lost Soldier, Sweetwater County: Sinclair Wyoming Oil 2 Drayton-Consolidated, SE NE SE 3-26n-90w, 6,288 ft. TD, flowed 720 bbl. per day, acidized 2,000 gal., Amsden 4,975 ft., Darwin 5,057 ft., Madison 5,168 ft., Cambrian 5,475 ft., pre-Cambrain 6,150 ft.

SUCCESSFUL WILDCAT IN COLORADO

McElmo, Montezuma County: Western Natural Gas, Byrd-Frost, P. B. English 1 Schmidt, OWWO OTD 7,046 ft., 7,099 ft., TD, Cambrian 7,099 ft., completed as shut-in. CO-2 gas well, estimated 30,000,000 cu. ft. noninflammable gas 6,915-35 ft., 7,000-20 and 6,955-65 ft. in Devonian. Devonian 6,950 ft. Elev. 5,990, ground. (Location—C SW NW 24-36n-18w.)

WILDCAT FAILURE IN MONTANA

Box Elder Dome, Petroleum County: British-American Oil Prod. Co. 1 fee, NW SE NW 25-17n-24e, 1,068 ft. TD, abnd., Ellis 1,010 ft.

OHIO, KENTUCKY

Gas Encountered in Cuyahoga Test

COLUMBUS.—Frank Lyons 1 Davis and Harburger, Lot 42, Parma Township, Cuyahoga County, encountered 561,000 cu. ft. gas in the Oriskany sand while drilling for the Clinton, ½ mile south of the discovery well on Hausheer. Top of the sand was reached at 1,805 ft. with pays at 1,810 and 1,840 ft. The gas will be shut in the bradenhead and drilling continued. Across the road to the west L. F. McGrath 1 A. Payer, Lot 41, also found a pay in the Oriskany. The sand was topped at 1,750 ft. with the pay at 1,770-92 ft. The well gaged 575,000 cu. ft. and will be tubed without further drilling.

Ohio Fuel Gas Co. 2 V. L. Young, Lot 5, Wellington Township, Lorain County, widened the North Wellington pool a location to the east. Clinton sand at 2,336-42 ft. gaged 2,260,000 cu. ft. natural.

Another good well for Lawrence Township, Tuscarawas County, was completed by Frank Brendel on 1 Michael Duerr, Section 24. White Clinton at 4,761-73 ft. made 942,000 cu. ft. natural and 1,979,000 cu. ft. when shut in after shot.

New locations have dropped a little and are now at about the completion rate. Twenty-six locations from twelve counties being reported for the week. Athens County led with six and was followed by Perry with five, Muskingum and Monroe with three each, and Meigs with two. Lancaster field led in completions with 8 out of a total of 28.

WESTERN KENTUCKY

OWENSBORO.—In the eastern section of Henderson County, W. Chenault and C. Morburger have completed 1 George F. Priest as a Tar Springs well with an initial production of 70 bbl. per day. Pay zone is at 1,489-90 ft. with total depth of 1,490 ft.

The deep test, in Webster County, Pure Oil Co., Ashland Oil & Refining Co., and I. B. Browning 1 M. L. Walker, is in the process of shifting from rotary to cable tools for the second part of the drilling. The present depth, drilled with rotary tools, is 1,710 ft.

F. T. Shelton and Ashland Oil & Refining Co. are testing the area about 1 mile southeast of Dixon in Webster County with a wildcat 1 Mattie Ramsey, SE NE SW 21-M-22. The hole is now 2,515 ft.

EASTERN KENTUCKY

ASHLAND.—One completion was on record for the week in the Eastern Kentucky field of operations. The Kentucky-West Virginia Gas Co. completed Well No. 886, W. D. Hall, Knott County, at a total depth of 3,068 ft., for 61,000 cu. ft. of gas in shale, A.S.

One new location was noted, the Kentucky-West Virginia Gas Co.'s Well No. 5787, Elisha Branham, Pike County.

INDIANA

EVANSVILLE.—Posey County has good prospects for new Cypress production at G. L. Reasor 1 Olus Justus, NE NE NE 15-6s-12w, where operator has set casing for further test. A drill-stem test at 2,240-44 ft. with tool open for 1½ hours recovered 165

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ft. of oil and 10 ft. of oil-cut mud with no water.

Kidd & Cherry and Ashland Oil & Refining Co. 1 Robert Wilson, NE NE SE 31-5s-13w, Posey County, is cleaning out after shooting the Mansfield at 1,186-96 ft. From an earlier report, the well swabbed 10 bbl. of oil and 3 bbl. of water in 24 hours.

In Gibson County, Gibson Drilling Co. and Carter Oil Co. 1 H. M. Montgomery, SE NE SE 18-3s-11w, swabbed 4 bbl. per hour from perforations at 2,470-78 ft. and 2,482-86 ft. after acidizing with 2,000 gal. This well opens a new area southeast of Owensville.

INDIANA SUCCESSFUL WILDCATS

Pike County: J. T. Peel 1 Dillon, SE NE SW 15-1n-9w, IP 8 bbl., Pennsylvania sand, 960-64 ft., TD 977 ft. (Extension to Union-Bowman field).

Posey County: S. P. Jarvis 1 Wesley Schweikart, SW NE SW 1-6s-12w, IP 10 bbl., Tar Springs, 1,969-79 ft., TD 2,100 ft.

INDIANA WILDCAT FAILURES

Miami County: V. & S. Oil Co. 1 Carter Butt, CW½ NE NE 22-27n-5e, dry, TD 1,005 ft.

J. A. Van Horn & Sons 1 A. M. Temple, SE NW SE 32-27n-4e, dry, TD 914 ft.

Kuwait's Output Rising

Total Kuwait oil production for the first 5 months of this year was 1,577,757 tons, or approximately 78,360 bbl. daily.

Production in May alone was 421,086 tons, or approximately 100,514 bbl. daily. Current production is reported to be running at the rate of 125,000 bbl. daily.

California Court Tries Misrepresentation Cases

After pleading guilty to charges of misrepresentation of Pennsylvania oils, Jean P. Sarlin doing business as Golden State Oil & Grease Manufacturing Co., was given a suspended sentence of $3,000 and 30 days imprisonment at a trial recently in the Los Angeles Superior Court. Charges were filed by C. L. McGaughey, Los Angeles, who represented the Pennsylvania Grade Crude Oil Association, Oil City, Pa.

The charges grew out of sales of two brands of lubricating oil known as "Bear Penn," and "Golden State," both of which were misrepresented to be 100 per cent pure Pennsylvania.

Pleas of guilty on similar charges were entered earlier this month by William R. Houston and Norman Gage, doing business as H & G Oil Co., involving "Pen Vis" and "Ben Hur" brands.

LEGAL

U. S. DEPARTMENT OF THE INTERIOR, Bureau of Land Management, Washington 25, D. C. Notice is hereby given that the lands listed herein are offered through sealed bids on the terms hereinafter specified, to qualified bidders of the highest cash amounts per acre as a bonus for the privilege of leasing the lands under sec. 17 of the Leasing Act of February 25, 1920 (41 Stat. 437; 30 U.S.C. sec. 181), as amended. All bids must be submitted to the Director, Bureau of Land Management, Washington 25, D. C., on or before 1 p.m. of the date set out herein. Each bidder must submit with the bid one-fifth of the amount bid in cash or by certified check on a solvent bank or by money order made payable to the order of the Treasurer of the United States, and file the showing of qualifications to receive a lease required under 43 CFR 192.42 (b) and (c). The envelopes should be plainly marked that they are not to be opened before the date and hour set out herein, and should show the number of the parcel and the name of the field. No bids received after the hour fixed herein for receiving bids will be considered. The remainder of the bonus and the annual rental must be paid and an acceptable surety bond in the sum of at least double the amount of rental, but in no case less than $1,000 nor more than $5,000, must be furnished by a successful bidder prior to the issuance of a lease. An acceptable $5,000 surety bond will be required prior to commencing drilling operations on the land. The deposits of the other bidders will be returned upon acceptance of the successful bids. Bidders are warned against violation of section 59, U.S. Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids. Royalties payable to the United States will be at the rate of 12½ per cent to 25 per cent for oil, and 12½ per cent to 16⅔ per cent for gas, in accordance with Schedule B in the lease form. Annual rental will be at the rate of $1 per acre. The lands are in the kown geologic structure of the Boone Dome field, Wyoming, and are offerred in the following parcels, all in T. 35 N., R. 85 W., 6th P.M.: Parcel No. 1, sec. 4, SW¼, SW¼SE¼; sec. 9, NE¼NE¼; sec. 10, S½NW¼, 280 acres. Parcel No. 2, sec. 9, N½NW¼, SE¼NW¼, E½SW¼, W½SE¼, SE½SE¼, 320 acres. Parcel No. 3, sec. 10, NW¼SE¼, SE¼SE¼; sec. 14, W½NW¼, SW¼; sec. 15, E½NE¼, 400 acres. Parcel No. 4, sec. 15, N½SW¼, SE¼SW¼, S½SE¼, 200 acres. Parcel No. 5, sec. 22, N½NE¼, SE¼NE¼; sec. 23, NW¼, 280 acres. Total 1480 acres. Bids must be submitted on or before 1 p.m. daylight saving time, August 4, 1948, and must be submitted on each parcel separately, but no objection will be made to the award of more than one parcel to the same successful bidder. Marion Clawson, Director.

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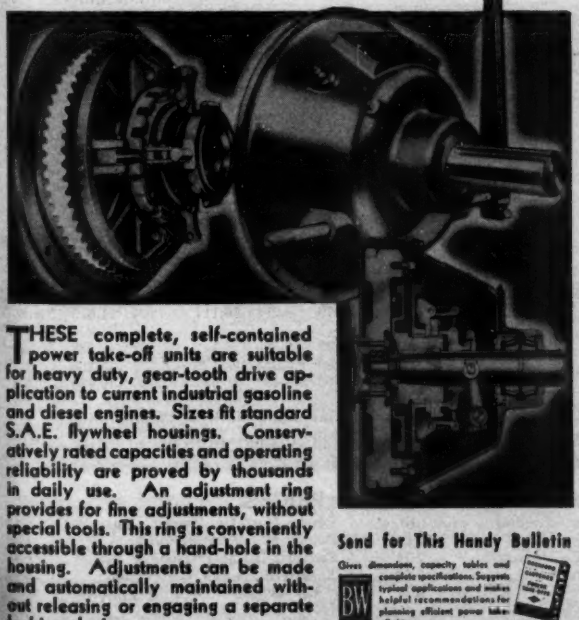

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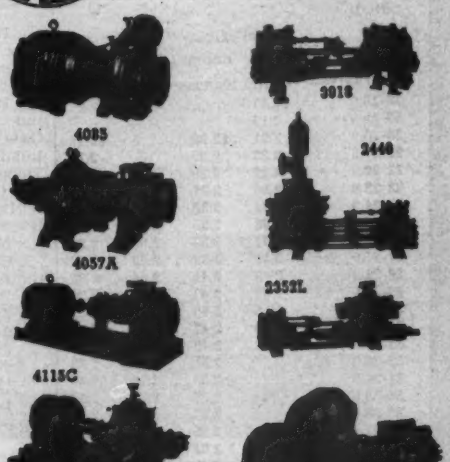

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STATISTICS and

WEEKLY WELL COMPLETIONS . . . WEEK ENDED JULY 10, 1948

	Total of all wells					Cum.		Wildcat completions and discoveries					Cumulative total, 1948				
	Comp.	Oil	Gas	Dry	Footage	1948	1947	Oil	Dist.	Gas	Dry	Total	Oil	Dist.	Gas	Dry	Total
New York	26	13	0	*13	33,004	818	767	0	0	0	0	0	0	0	0	0	0
Pennsylvania	49	23	3	†23	78,281	1,406	1,462	0	0	0	0	0	0	0	9	13	22
West Virginia	23	2	15	6	61,404	406	422	0	0	1	0	1	3	0	29	32	64
Ohio	28	10	12	‡6	65,660	699	666	0	0	0	0	0	2	0	8	17	27
Indiana	41	19	0	22	64,997	513	317	2	0	0	2	4	14	0	1	20	35
Kentucky	12	2	1	9	15,505	339	327	0	0	0	0	0	4	0	0	8	12
Illinois	49	24	0	25	131,323	1,130	1,006	1	0	0	7	8	23	0	1	161	185
Michigan	16	5	4	7	26,713	394	394	0	0	0	4	4	9	0	8	134	151
Kansas	57	25	12	§20	188,677	1,546	1,311	3	0	0	5	8	29	0	4	208	241
Neb., Mo., Iowa	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1
Oklahoma	66	39	3	§24	218,261	2,077	2,085	2	0	1	7	10	67	7	16	332	422
Texas	231	133	6	92	1,086,156	5,985	4,540	10	0	0	50	60	165	16	52	1,041	1,274
North Central (Dist. 7-B & 9)	72	27	2	43	238,417	1,815	1,438	1	0	0	21	22	60	0	9	366	435
West (Dist. 7-C & 8)	66	49	0	17	341,998	1,592	1,087	3	0	0	6	9	30	0	2	111	143
Panhandle (Dist. 10)	11	9	2	0	33,265	315	221	0	0	0	0	0	0	0	1	6	7
Eastern (Dist. 5 & 6)	16	9	1	6	95,470	282	257	0	0	0	4	4	5	2	0	65	72
Gulf Coast (Dist. 2 & 3)	30	21	0	9	192,530	942	813	3	0	0	7	10	44	12	11	231	298
Southwest (Dist. 1 & 4)	36	18	1	17	184,476	949	724	3	0	0	12	15	26	2	29	262	319
Louisiana	47	30	2	15	257,891	1,121	679	3	0	1	5	9	23	12	3	109	147
Northern	28	19	1	8	91,301	743	355	0	0	0	3	3	1	1	0	53	55
Southern	19	11	1	7	166,590	378	324	3	0	1	2	6	22	11	3	56	92
Arkansas	0	0	0	0	0	146	135	0	0	0	0	0	3	0	0	44	47
Mississippi	2	0	0	2	24,245	200	244	0	0	0	1	1	2	0	3	41	46
Southeastern States	3	0	0	3	21,435	25	25	0	0	0	3	3	0	0	0	23	23
Montana	6	3	0	3	9,046	134	116	0	0	0	1	1	2	0	0	9	11
Wyoming	17	11	0	6	60,584	238	107	1	0	0	1	2	15	0	1	24	40
Colorado-Utah	7	6	1	0	45,682	129	97	0	0	1	0	1	0	0	2	23	25
New Mexico	13	12	0	1	46,226	326	269	0	0	0	0	0	4	1	1	23	29
California	47	41	0	6	164,581	1,498	1,043	3	0	0	5	8	47	0	1	154	202
Total United States	740	398	59	283	2,599,671	19,042	16,014	25	0	4	91	120	412	36	139	2,417	3,004
Total previous week	791	439	56	296	2,737,402	18,302	15,341	16	1	5	110	132	387	36	135	2,326	2,884
Total July 12, 1947	673	369	60	244	2,431,349			13	1	3	78	95	339	42	96	1,981	2,458

Service wells included: *13, †23, ‡2, §1.

CRUDE PRICES AND REFINERY ACTIVITY

GRAVITY SCHEDULES

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

Gravity—	Signal Hill, Calif.	Oklahoma, Kansas	Gulf Coast Tex.*	West Tex.†
18-18.9	$2.17	....	....	....
19-19.9	2.19	....	....	....
20-20.9	2.21	$2.25	....	$2.12
21-21.9	2.23	2.27	....	2.14
22-22.9	2.27	2.29	....	2.16
23-23.9	2.30	2.31	....	2.18
24-24.9	2.34	2.33	$2.56	2.20
25-25.9	2.38	2.35	2.58	2.22
26-26.9	2.41	2.37	2.60	2.24
27-27.9	2.45	2.39	2.62	2.26
28-28.9	2.49	2.41	2.64	2.28
29-29.9	2.53	2.43	2.66	2.30
30-30.9	2.56	2.45	2.68	2.32
31-31.9	2.59	2.47	2.70	2.34
32-32.9	2.62	2.49	2.72	2.36
33-33.9	....	2.51	2.74	2.38
34-34.9	....	2.53	2.76	2.40
35-35.9	....	2.55	2.78	2.42
36-36.9	....	2.57	2.80	2.44
37-37.9	....	2.59	2.82	2.46
38-38.9	....	2.61	2.84	2.48
39-39.9	....	2.63	2.86	2.50
40 and above	....	2.65	2.88	2.52

*For crude from Daboval, El Campo, and Sand Point. †Includes Lea County, New Mexico.

A.P.I. REFINERY REPORT, WEEK ENDED JULY 3

(Thousands of barrels)

District—	Crude runs, daily avg.	Production: Gasoline†	Kerosine	Gas & dist. oil	Residual	Stocks at refineries, bulk terminals, in transit and in pipe lines: Gasoline*	Kerosine	Gas & dist. oil	Residual
East Coast	913	2,295	331	1,224	1,701	25,613	7,796	14,199	9,863
Appalachian:									
District 1	111	343	63	74	82	1,924	397	466	361
District 2	60	204	14	53	92	825	109	139	107
Ind., Ill., Ky.	925	3,502	327	948	1,088	21,474	3,235	6,350	4,819
Okla., Kans., Mo.	465	1,631	142	576	553	9,166	1,153	3,586	1,924
Inland Texas	252	1,107	95	183	419	3,290	745	592	802
Texas Gulf Coast	1,432	4,399	653	2,196	1,979	15,668	2,060	6,142	6,120
La. Gulf Coast	436	1,267	328	688	559	5,350	1,508	2,917	1,479
N. La. and Ark.	89	214	55	100	134	1,890	560	522	363
Rocky Mountain:									
New Mexico	10	36	7	10	24	80	25	27	28
Other Rocky Mt.	153	466	41	163	210	2,748	201	983	974
California	855	2,577	60	970	2,214	16,117	944	11,615	34,186
July 3, 1948	5,701	18,041	2,116	7,185	9,055	104,145	18,733	47,538	60,926
June 26, 1948	5,674	17,938	2,350	7,200	8,858	104,178	18,436	45,166	58,812
July 5, 1847	5,134	15,832	1,951	5,703	8,482	88,627	14,938	40,493	49,256

*Finished and unfinished. †At refineries including natural blended.

Bureau of Mines crude-oil stocks 223,708,000 bbl. as of July 3—up 1,627,000 bbl. One year ago 233,810,000 bbl.

FLAT CRUDE PRICES

Representative posted schedules per bbl.	
East Texas	$2.65
Kettleman Hills, California*	2.14
Beauregard Parish	2.60
Illinois Basin	2.77
Pecos County, Texas (Yates)	2.25
Bradford, Pennsylvania	5.00
Eastern Ill. and Western Ind.†	2.77
Tomball, Texas Gulf Coast	2.83

*37°-37.9°. †35° and above.

TRENDS

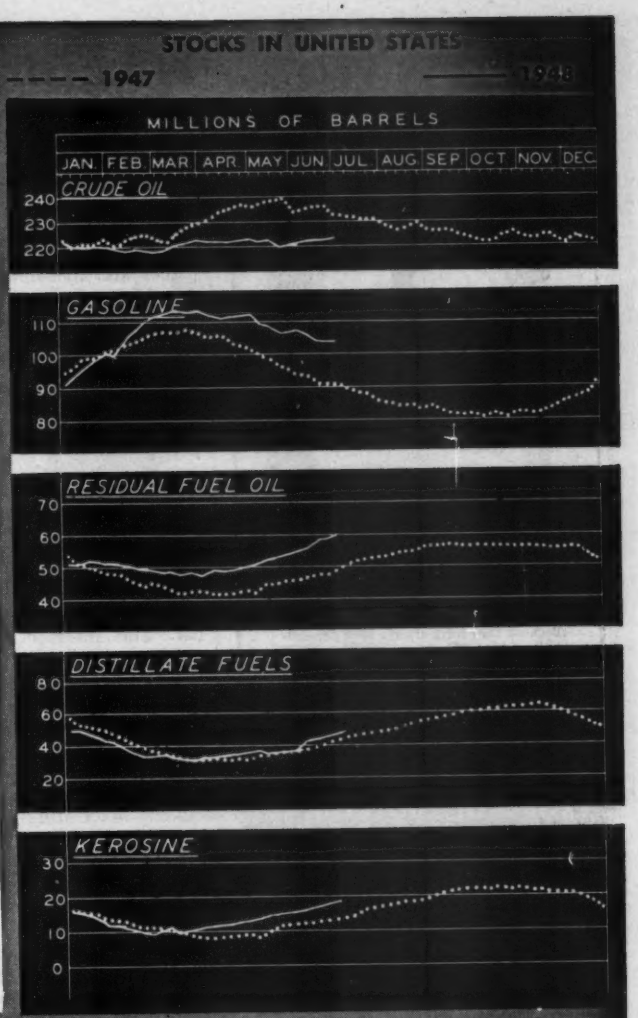
DAILY AVERAGE PRODUCTION FOR WEEK

	July 10 crude oil	B. of M. July demand	July 3 crude oil
Alabama	1,210	1,500	1,345
Arkansas	81,710	88,000	81,260
California	948,750	950,000	948,800
Colorado	46,590	50,000	45,570
Eastern	64,700	66,000	62,950
Florida	825	800	950
Illinois	170,800	173,000	170,900
Indiana	20,200	16,000	21,000
Kansas	295,000	304,000	300,400
Kentucky	23,200	25,000	23,000
Louisiana	476,050	492,000	471,510
North Louisiana	112,950	.....	112,500
South Louisiana	363,100	.....	359,010
Michigan	44,850	46,000	42,300
Mississippi	118,520	125,000	125,210
Montana	24,890	26,000	26,400
Nebraska	400	700	400
New Mexico	128,900	138,000	128,675
Oklahoma	428,150	432,000	417,950
Texas	2,452,500	2,540,000	2,459,330
Dist. 1 (Southwest)	28,625	.....	28,675
Dist. 2 (Southwest)	175,175	.....	174,325
Dist. 4 (Southwest)	252,500	.....	254,955
Dist. 3 (Gulf Coast)	493,100	.....	495,950
Dist. 5 (Eastern)	47,925	.....	47,350
Dist. 6 (Eastern)	120,250	.....	125,875
East Texas Field	303,000	.....	306,150
Dist. 7-C (West)	42,725	.....	44,775
Dist. 8 (West)	706,950	.....	701,575
Dist. 7-B (W. Central)	49,500	.....	48,875
Dist. 9 (N. Central)	142,350	.....	140,875
Dist. 10 (Panhandle)	90,400	.....	87,950
Wyoming	148,210	156,000	143,780
Total United States	*5,475,455	5,630,000	5,471,730
Change from prev. wk., up	3,725		

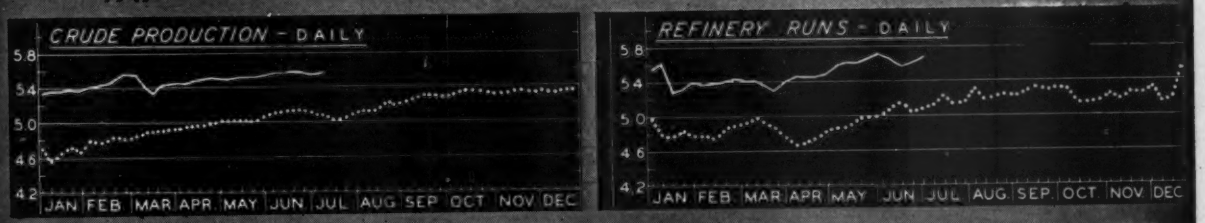
Total production January 1-July 10 ..... †1,048,932,230 bbl.
Same period last year (crude plus cond.) 941,005,280 bbl.

*Not incl. 75,755 bbl. condensate. †Incl. 14,305,180 bbl. condensate.

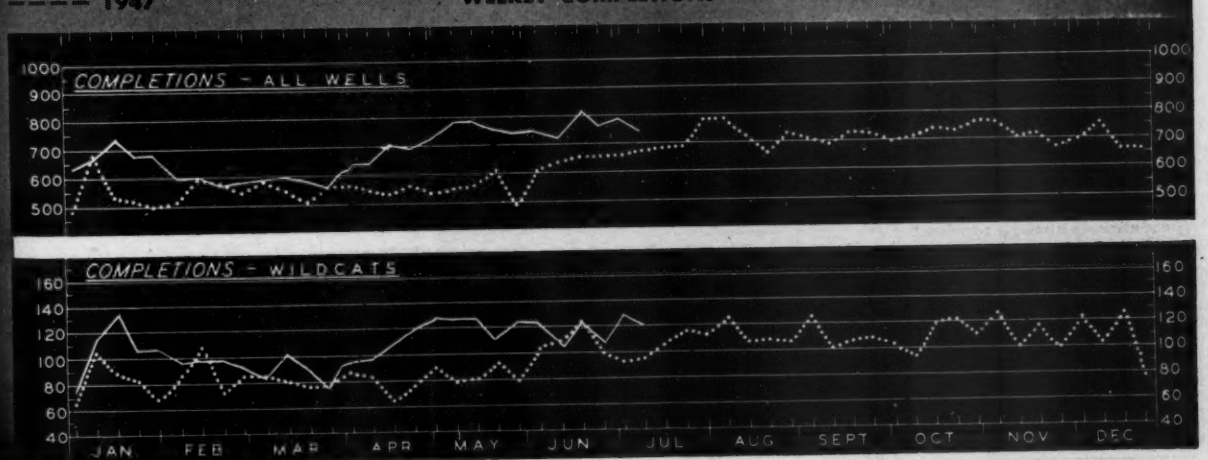
STOCKS IN UNITED STATES



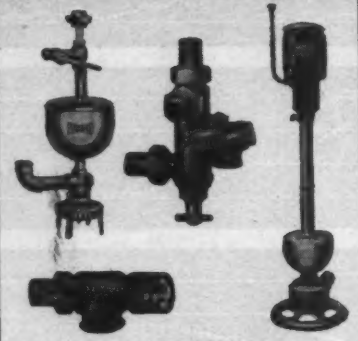
DAILY OPERATIONS



WEEKLY COMPLETIONS



PENBERTHY
QUALITY
PRODUCTS



Penberthy injectors—ejectors—automatic electric and water (or steam) operated sump pumps are all widely used throughout the oil industry because they have always been dependable under the most severe service conditions.
All are of rugged construction and made by an organization with 59 years experience in the manufacture of highest quality products.

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MARKETS

SEVERAL marketers in the Houston area last week reported demand for practically all products had eased considerably recently. Burning oils were reported moving in intercompany spot transactions at publication prices and in some cases slightly under. Motor-fuel prices were still holding up generally under the usual seasonal demand, but it was reported some of the particularly high premiums were no longer being obtained. Spot-market price for regular on the Gulf Coast was around 12¼ cents per gallon.

No. 6 Market Weak

Weakness was particularly noted in the market for No. 6 heavy fuel oil. Little movement of this material was reported. Price appeared to be around $3 for water shipment and $2.50 tank car. The interior Group 3 tank-car market was said to be even lower.

Some marketing officials who had followed stock figures of recent weeks were inclined to believe the industry's current high rate of production was bringing supply closer to demand and that this fact was easing the previously exceedingly tight spot market. Another view was that the market had loosened up with buyers no longer expecting a crude advance.

In the New York Harbor area most petroleum products were reported scarce and that open spot market trading remained slow despite the relatively heavy inquiry from the upstate area and Canadian buyers. Reports of buyer resistance for spot No. 2 at 11½ cents continued. Some buyers were reported reluctant to bid over 11 cents per gallon. However, actual sales at the 11-cent level were not reported and many suppliers continued to ask 11½ cents for light heating oil.

Price quotations generally for all petroleum products along the Eastern Seaboard remained unchanged from the previous week.

"Fancy Premiums" Ease Off

In the Mid-Continent area "fancy premiums" were reported "continuing to ease" on spot-market trading for motor fuel and movements were reported more active than previously.

One Oklahoma supplier reported being offered several tank cars of housebrand gasoline at 12½ cents per gallon f.o.b. North Texas. Contact with a jobber in Wisconsin revealed that the Wisconsin buyer could obtain the material at an equivalent price in Minnesota of about ½ cent per gallon less than the price of the North Texas material.

Demand for No. 2 fuel oil continued to remain "rather firm" with little change toward a lower price level indicated before the burning oil season begins. Demand and movement of heavy residual oils continued exceedingly slow and in the past week was noted as being even slower according to one supplier. The price level of No. 6 tended to drop below the previous week's level, as has been the tendency for the past several weeks.

Suppliers generally were optimistic in that the peak motor-fuel season will be amply provided for and that there will be few if any spot shortages of material. They looked upon the success of the supply situation over the recent 3-day holiday period as a good indication of the ability of the industry to meet the heavy demand.

Tank cars continued to be relatively easy to obtain and even further easing up in the availability of cars during the past week was reported by one buyer.

Representative Quotations

Representative spot-market quotations of leading suppliers as of July 12, 1948. Figures are f.o.b. plant for tank-car shipment in cents per gallon, except for residual fuel oil which shows the price per barrel and wax, in cents per pound.

GASOLINE, KEROSINE, AND FUEL OILS

	Mid-Continent Group 3	New York Harbor	Texas Gulf Coast
Regular gasoline, 73-75 octane	10½-12	11.6-12* 10.5-11.9†	10.9-12¾
Premium gasoline, 78-80 octane	11½-13½	10.6-13.4	12.9-13½
42-44 w.w. kerosine	9½-10	10.3-11.9	10¼-10½
No. 2 straw fuel oil	9-9½•	9.4-10.9	9.05-10
No. 6 residual	$2.35-2.50	$3.03-3.90	$2.35-2.75

*Branded (74-76 octane); †Unbranded (74-76 octane).

NATURAL GASOLINE

	Group 3	North Texas	N. La.
Grade 26-70	8½	8	8¼
Grade 18-55	10.2	9.6	9.9

LUBRICATING OILS
South Texas

200 vis., No. 2-3 neutral	12-14.5
750 vis No. 3-4 neutral	15-17.25
2,000 No. 5-6 neutral	17-21

LUBRICATING OILS
Mid-Continent

150-160 vis., D bright stock, 0-10 pp.	30-32
200 vis. No. 3 neutral, 0-10 pp.	20-21

Western Pennsylvania

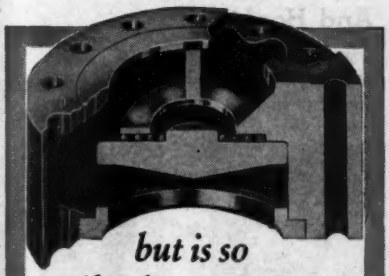
145-155 vis. 10 p.t. bright stock	47
180 vis. p.t. neutral	45

CRUDE-SCALE WAX
Mid-Continent

130-132 A.S.T.M. melting point	6¾-7

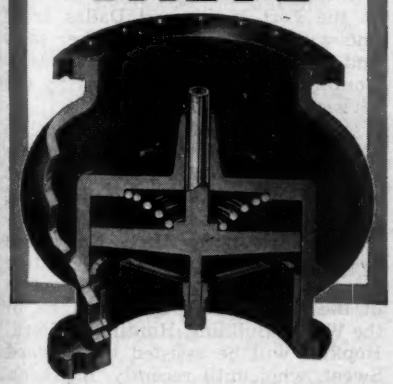
From Small Schools to Huge Plants...

WATER HAMMER is serious



but is so easily eliminated with

THE WILLIAMS-HAGER *flanged* SILENT CHECK **VALVE**



Write for complete information on The Williams-Hager Flanged Silent Check Valve—that has proven successful on the most difficult installations.

THE WILLIAMS GAUGE CO.

Pump Valves . . . Water Gauges . . . Gauge Cocks . . . Steam Traps . . . Pump Governors . . . Feed Water Regulators . . . Water Columns

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HIYA, FOLKS . . . just dropped in to show you my Crosby Clips!

There's no monkeying around with makeshift wire rope fasteners, on jobs *where safety comes first.* All over the world, big jobs and small jobs are rigged with genuine CROSBY CLIPS. They're steel, drop-forged, hot dip galvanized. Correct design makes a positive "vise-tight" grip. Complete run of sizes . . . for ⅛ inch to 3 inch wire rope. Distributors everywhere. Made only by AMERICAN HOIST and Derrick Co., St Paul 1, Minnesota.

Industry uses more

CROSBY CLIPS

than all other drop-forged fasteners

For Armored Construction . . . specify **AMERICAN BLOCKS AND SHEAVES**

● A complete line of wire rope blocks—all types, all sizes, in capacities from 1½ to 250 tons. Thick steel side plates, heavy pins and axles. Ask for American equipment when ordering.

ONE MAN LIFTS 10,000 LBS. WITH THE **AMERICAN HANDIWINCH**

● Gives one man the power of a crew. Weighs only 95 lbs. Handles lifting, loading and pulling jobs up to 5 tons. All steel construction. Ask your distributor.

EQUIPMENT MEN ... in the News

Wood Elected Executive Vice President

The members of the board of directors of Girdler Corp., Louisville, have elected W. Roberts Wood executive vice president of the organization.

Wood was born in Louisville and received his degree of bachelor of chemistry at Cornell University. He was associated with DuPont in the East before joining Girdles on November 1, 1929. He was placed in charge of the firm's gas-processes division on October 1, 1938, and on June 20, 1941, he was elected vice president.

Barnes to Head Bethlehem Tulsa Plant

John F. Easton, vice president in charge of manufacturing, Bethlehem Supply Co., announces that H. A. Barnes, former assistant superintendent of the Tulsa plant, has been named manager of the Tulsa plant.

Barnes, a graduate of Lehigh University in engineering, came to Bethlehem Supply in 1939 as sales engineer and was later transferred to the Tulsa plant, in which he has served in various capacities.

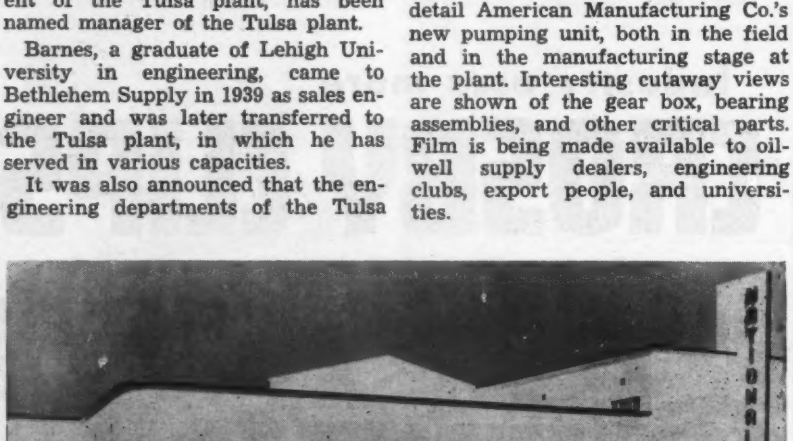
It was also announced that the engineering departments of the Tulsa and Corsicana plants would be consolidated at Tulsa, under the direction of Harvey E. Davidson. Davidson, who has been with the company since 1941, was formerly chief engineer of the Tulsa plant. He is a native of Kansas and attended Kansas State College.

At the same time, C. R. Zimmerman, executive vice president of Bethlehem Supply Co., announced that Lee Fagg, former chief engineer of the Corsicana plant, has been transferred to Tulsa as manager of engineering sales, replacing B. E. Groenewold, resigned.

Fagg, a native Texan, was graduated from Texas A. & M. College. His entire career has been spent in the oil-well supply business, both in sales and engineering. He first was employed by the National Supply Co. and later by American Well & Prospecting Co.

New Film Features American Pumping Unit

"More Profitable Pumping" is the title of the new 16-minute motion picture made in Kodachrome color and sound. Picture demonstrates in detail American Manufacturing Co.'s new pumping unit, both in the field and in the manufacturing stage at the plant. Interesting cutaway views are shown of the gear box, bearing assemblies, and other critical parts. Film is being made available to oil-well supply dealers, engineering clubs, export people, and universities.



Recent completion of a new, ultramodern store and warehouse at Bakersfield, Calif., which triples its former capacity, was announced by National Supply Co. with an open house to which more than 2,000 oil producers in the district were invited. The new store is one of the largest and most complete of its type in the United States, according to J. L. Philipp, district manager at Bakersfield

Parker Named Vice President of Board

R. I. Parker of Chicago has been elected a commercial vice president by the board of directors of General Electric Co. Parker succeeds W. O. Batchelder, who is retiring after 43 years' service.

Kobe Promotes Elner And Hopkins

Ray Elner, district manager for Kobe, Inc., in the Los Angeles Basin for the past 3 years, has been promoted to assistant to Russell G. Ralph, Mid-Continent division manager. He will have charge of company contacts in the Fort Worth and Dallas areas and will also handle such other sales and technical operations in the Mid-Continent as may be assigned by the division manager.

RAY ELNER

J. HOPKINS

Consolidation of the Los Angeles Basin and coastal districts under the managership of John Hopkins is also announced by Kobe, Inc. Hopkins, who joined Kobe in 1946, after wartime service in the U. S. Navy, has been coastal district representative for the past year. The headquarters of the combined districts will be in the Wilson Building, Huntington Park. Hopkins will be assisted by Howard Sweet, who, until recently, has been a member of Kobe's technical service division.

Ronaflex Appoints Oil-Field Distributor

Morvin Thomas Co., 310 Thompson Building, Tulsa, now distributes Ronaflex Assemblies, the flexible tubing with quick snap-on couplings. The territory covered is Oklahoma, Kansas, Kansas City, and Joplin, Mo.

Thomas has spent his entire business career in the petroleum industry. In addition to Ronaflex, he handles several other lines including

those of Irving Subway Grating Co., A-1 Bit & Tool Co., MagniLastic Division, and Globe Steel Tubes Co.

Hancock Elected President Of McCord Corp.

W. G. HANCOCK

A. C. McCord, chairman of the board of McCord Corp., has announced the election of W. G. Hancock as president of the corporation.

Hancock, previously vice president in charge of operations, and a director, has been associated with McCord Corp. for the past 29 years in various capacities.

McCord for a considerable period has handled both the offices of chairman and president simultaneously. He will still continue as the principal officer of the corporation.

Schlumberger Announces Personnel Changes

R. I. Seale, of Schlumberger Well Surveying Corp., Dallas, has been made area representative for Northwest Texas and New Mexico. He will keep his headquarters at Dallas.

L. A. Puzin has been made division manager for North and Central Texas with headquarters at Dallas.

A. Morazzani has been made division manager for the Permian Basin with headquarters at Midland.

Crafts Joins Universal

L. H. CRAFTS

Ralph G. Klieforth, president of Universal Motor Co., Oshkosh, Wis., has announced the appointment of L. H. Crafts as vice president and general sales manager of the company. Crafts is widely known in the industry having been general sales manager of the automotive, industrial, and marine division of Lycoming Manufacturing Co. for a number of years and later eastern sales manager of Buda Co.

Crafts left Buda to take charge of the Washington office of Sterling Engine Co. as assistant vice president during the war and served as a member of the internal-combustion-engine section of the War Production Board. Following the war and prior to joining Universal he has been acting as sales manager of Curtis Marine Co., Inc., Norfolk, handling the sale of gasoline and diesel marine and industrial engines.

Harvey Smith Joins Lenkurt Electric

Harvey W. Smith has joined the engineering staff of Lenkurt Electric Co., San Carlos, Calif., manufacturers of telephone and telegraph carrier equipment for wire-line and radio application. In full charge of design and construction of high-quality transformers both for carrier application and custom manufacture, Smith will draw on his background as an independent consultant and as chief engineer at Peerless Electrical Products Co., and Robert M. Hadley Co., both of Los Angeles, and Glenn-Roberts Co., Oakland, Calif. He has also been a member of the engineering staffs of Bendix Aviation, Ltd., Hollywood; Audio Products Co., Burbank; and Electrical Research Products, Inc., Hollywood.

Oil Well Announces West Texas Changes

Three personnel changes in Oil Well Supply Co.'s West Texas District have been announced by V. J. Waters, manager of central midwest division.

Taylor E. Bowers, manager of Oilwell's Odessa store, has been appointed assistant manager of the West Texas district, with headquarters at Midland.

Willis Blackwell, a veteran of 22 years with the company, who has been district warehouse supervisor, headquartered at Odessa, since October 1941, was named to succeed Bowers.

Blackwell will be succeeded by Jerry L. Wall, storeman in the Odessa store since April 1941.

Macke Named Zenith Advertising Manager

William E. Macke has been appointed advertising manager of Zenith Radio Corp., H. C. Bonfig, vice president and director sales, announced recently.

In his new position, Macke will be responsible for the coordination of all advertising and sales promotion activities. He joined Zenith in 1943, and has a total of 20 years' experience in radio.

Big Three Welding Opens Lubbock Branch

Big Three Welding Equipment Co. of Houston and Fort Worth, has recently announced the opening of a new branch in Lubbock, Tex. The new branch will bring to the territory within a 150-mile radius of Lubbock complete selling and service facilities for Lincoln AC and DC "Shield Arc" welders and electrodes as well as gas welding equipment and complete welding accessories. The firm also handles positioners and air tools.

Sales in the Lubbock branch will be under the direction of L. A. Carter. Gary Madsen is in charge of the office and wholesale operations.

Farley Appointed Industrial Head

I. K. Farley has been appointed industrial manager of the Houston branch, Brown division of Minneapolis-Honeywell Regulator Co. it is announced by W. H. Steinkamp, field sales manager of the Brown subsidiary.

R. L. Mallory, branch manager for the Houston Honeywell branch, will devote more of his time to the overall industrial activities of both companies in the Southwest area.

Cloer Joins Rector Well Equipment Co.

J. R. CLOER

L. L. Rector, president of Rector Well Equipment Co., has announced the addition of V. R. Cloer to the company's cementing division. Cloer will devote his time and effort to the sale and service of Rector Fulbore cementing equipment. Cloer has had many years' experience in the oil industry, having started with Sargent Engineering Co. in 1937. Since that time he has been with McQueen & Clevenger, and Rowan Drilling Co., drilling contractors, and prior to entering the service was with the West Texas division of Gulf Oil Corp.

Paddock Engineering Moves to New Plant

Paddock Engineering Co. of Texas has moved to its new location at 3727 Atwell Street in the Airlawn industrial district near Love field, Dallas. Temporary offices have been established in a section of the shop and final completion of all buildings is scheduled for September.

When finished, this $100,000 project will consist of a modern office building, shop and warehouse, a yard for heavy construction equipment, and a modern swimming pool for employes.

Occupying space in the same office will be Paddock Sales of Texas, Inc., sales agent for Paddock Engineering, with A. L. Eisenman as president. A complete line of chlorinating and water-treating equipment for municipal, industrial, and domestic uses will be featured.

Classified Advertising

The Market Place for the Oil Industry

UNDISPLAYED

All ads, 12 cents a word. Minimum charge, $3.00 per insertion.
Centered Line, any ad, $1.00.
Box Numbers count 9 words when replies are to be sent to our Tulsa Office. Replies forwarded without charge.

DISPLAYED, PER INCH

$12.00 per column inch per insertion. One-point border and 12-point capitals are allowed. Larger type sizes not accepted.

All classified advertising payable in advance.
10% Discount if 3 insertions are ordered at one time.
COPY DEADLINE, 9:00 a.m. Monday prior to each week's issue.

THE OIL AND GAS JOURNAL
P. O. Box 1260, TULSA, OKLAHOMA

EQUIPMENT FOR SALE

FOR CABLE TOOLS
DEGEN PIPE AND SUPPLY CO.
Box 107, Red Fork Station, Tulsa, Oklahoma

FOR SALE: Wilson Master Model Winch powered by 6 MZR Waukesha engine. Unit mounted on one and one-half ton Chevrolet truck equipped with fifty foot single pole telescoping mast. Terms. Melton Supply Company, Seminole, Oklahoma.

PUMPS

Centrifugal and Reciprocating Chrysler Industrial Engines. Write for list and prices.

H. A. McCARTHY
810 Thompson Bldg., Tulsa, Oklahoma
Phone 5-3286

FOR SALE
STAINLESS STEEL
NAPTHENIC ACID PLANT

One—36" I.D. x 32' x ¼" Shell Stainless steel Fractionator with 7'-7" skirt—with 10 trays.

Four—5" x 3" x 8" Union Simplex Steam Pumps with solid stainless fluid ends.

One—Heater and Reboiler with 1" I.D. tubes and bolted return headers—stainless.

One—Condenser with ¾ I.D. tubes and bolted return headers—stainless.

Charge and product piping — stainless steel.

Analysis of stainless steel:
18% Chrome
8% Nickel
3% Molybdenum
½ to 1% Columbium

PLANT IN EXCELLENT CONDITION.
WE INVITE YOUR INSPECTION.

PROCESS
CONSTRUCTION CO., Inc.
20700 South Figueroa Street
Torrance, California
Los Angeles Phone:
PLeasant 2-8368
PLeasant 1-6660

EQUIPMENT FOR SALE

FOR SALE: New Welded Steel Tanks, New Bolted Steel Tanks—100 bbl., 250 bbl., 500 bbl., 1000 bbl., 2—10,000 bbl. Used Bolted Tanks—65 bbl., 100 bbl., 250 bbl. up to 5,000 bbl. Gasoline tanks, 3-10' x 50' 4-10' x 35', 6-7' x 30'. Also Tool Houses, new or used. Write: Independent Tank Company, Seminole, Oklahoma. Phone 977.

ONE 5½ Keystone Rig on Steel, complete with tools from 10" down. A-1 condition. Five Thousand Dollars. Rig in service at present at Chanute, Kansas. Neosho Drilling Co., Box 265, Chanute.

FOR SALE
2—74,000 BBL. CAP.
STEEL STORAGE TANKS
DARIEN CORP.
60 E. 42nd St., New York 17, N. Y.

FOR SALE

12—330 H.P. Type 10 Bessemer New 17" Power Cylinders complete ready to run with 16" to 18" Compressors. 1—330 H.P. Clark Horizontal with Compressors. Located Salem, Illinois.

ENGLE PETROLEUM, Incorporated
Box 655, Evansville, Indiana

FOR SALE

APP. 25,000 ft. of 7" Casing
1,500 ft. 8" Casing

JOSEPH DRURY
Beaverton, Mich., Ph. 103
or
JOSEPH LEVINSON
Doherty Hotel, Clare, Mich.

WE BUY and SELL

Steel Pipe and Tubing
Pipe Fittings—Well Casing
Culverts and Valves

SONKEN-GALAMBA
CORP.
2nd & Riverview, Kansas City 18, Kans.

EQUIPMENT FOR SALE

WEIGHTED DRILLING MUD
Have hi-grade deposit of barite suitable for manufacture of weighted drilling mud. Ideal for party looking for private source of supply. Will sell, lease, or contract delivery of crude ore or ground natural product. R. B. McElwaine, P.O. Box 127, Little Rock, Ark.

45 ST Star Spudder, without tools and line, with 120 hp. Hercules engine. Machine in excellent shape. Travco Equipment Co., 110 Midco Bldg., Tulsa. 5-2251.

SLUSH pump. Wheatley 6 x 6 with 4½" liners, Mission equipped. V-belted to 25 H.P. gas-gasoline Waukesha engine. Box 127, Little Rock, Arkansas.

FOR SALE: #2A National Machine, complete string of tools, 15 inches down, shear poles, Young engine, Wis. Light Plant. Good condition. Write or phone R. M. Rodgers, Quinton, Oklahoma.

FOR SALE
DIESELS and PUMPS

Six new 1947 unused 475 BHP 8 cylinder Baldwin Model VG Diesel Engines, four connected to Ingersol-Rand Multi-stage Centrifugal Pumps with Farrel-Birmingham Step-up Gears and two connected to Worthington Horizontal Triplex Double Acting Pumps, all units complete with Falk Couplings, Lummus Coolers, other accessories. Location Ohio, immediate delivery. Direct inquiries to

THE BUCKEYE PIPE LINE COMPANY
Joseph Steele, Purchasing Agent,
Room 2200, 30 Broad Street,
New York 4, N. Y.

Brand New!

WILSON-SNYDER
HOT OIL PUMP

Price $2500.00 F.O.B. Kansas City

- **Capacity: 55 Gallons Per Minute.**
- **Speed: 70 R.P.M.**
- **Head Pressure: 1600 lbs.**
- **Piston Size: 2¾".**
- **Stroke: 8".**
- **Stub Shaft: 2⅞" Diameter, arranged for gear drive.**
- **Serial Number: 12862.**

Write, Phone or Wire:

BROWN-STRAUSS
Corporation
P.O. Box 78, Kansas City, Missouri
Phone: Ha. 1000

STEEL PIPE

5300 ft. 3½" O.D. 7.57#, P.E., Lapweld (New)
3200 ft. 4½" O.D. 10.79#, P.E., Seamless (No. 1 Used)
3200 ft. 6⅝" O.D. 19.18# T&C Lapweld (No. 1 Used)
4300 ft. 18" O.D. 104.75# P.E. Seamless (No. 1 Used)
3000 ft. 8⅝" O.D. 42.32#, Lapweld, coupling one end, plain other.

All items 20' random and longer, available for immediate delivery.

HORWITZ PIPE & STEEL CO.
Phone 2-5128 **Tulsa, Okla.**

HELP WANTED

WANTED: Independent producer with over 20 years successful operations having very substantial production wants Field Production Superintendent capable of all field operations including drilling operations and productions in a section of Illinois Basin area. An excellent opportunity for the right man to get permanently located. Box C-447, The Oil and Gas Journal, Tulsa, Oklahoma.

MECHANICAL SUPERINTENDENT
With minimum of 8 years general experience in supervision of petroleum refining and steam boiler plant equipment maintenance and maintenance planning. Experience with fluid catalytic cracking unit maintenance desirable. B.S. in mechanical engineering or equivalent. Address reply to The Carter Oil Company, Box 801, Tulsa, Okla.

SITUATIONS WANTED

EXPERIENCED Drilling and Mud Engineer available for foreign employment. Some Spanish. Write Box C-453, The Oil and Gas Journal, Tulsa, Oklahoma.

GRADUATE PETROLEUM ENGINEER
Executive assistant with large producing company. Experienced in technical administrative work in production. Desires position with major or established independent. Age 33. Prefers East or Middle West but will consider anywhere. Box C-445, The Oil and Gas Journal, Tulsa, Oklahoma.

PURCHASING EXECUTIVE
STEEL AND HEAVY GOODS
Twelve years administering and co-ordinating all phases of Purchasing, Material and Inventory Control. My nine years with one company, buying thousands of tons of steel annually, gives me wide acquaintance in all major steel mills and places me in a position to secure steel for a long range program.
Also know sources non-ferrous metal, castings, tanks, pipe lines, valves, fabricating, electrical equipment, machinery, gas engines, tools, chemicals, wood and paper products. Know shop and manufacturing practice. Age 41, College Trained, M.E.
Box C-429, The Oil and Gas Journal, Tulsa, Oklahoma.

SITUATION Wanted: Experienced petroleum engineer, 31, family man, desires position in either Mid-Continent or West Coast, but will consider offer from any locality. Box C-401, The Oil and Gas Journal, Tulsa, Oklahoma.

GEOLOGIST: Six years major company experience wishes to become associated with established independent or small company. Reply: Box C-471, The Oil and Gas Journal, Tulsa, Oklahoma.

AVAILABLE IMMEDIATELY for any type of personnel or labor relations work. Three years experience as Industrial Relations Manager for 2700 man refinery of major oil company. Will locate anywhere. Forty, married, two children. Box C-477, The Oil and Gas Journal, Tulsa, Oklahoma.

ACCOUNTANT, age 36, with 12 years heavy office work, cost accounting, and accounting, 2 years with Oil Equipment Manufacturer; good educational background, dependable, and with a good record; now employed; desires connection with progressive Oil Well Equipment Manufacturer. Box C-468, The Oil and Gas Journal, Tulsa, Oklahoma.

GEOLOGICAL Draftsman desires position with Major Oil Company. Eight years experience in Topo-graphic Mapping, drafting and surveying in Gulf Coast States. Box C-475, The Oil & Gas Journal, Tulsa, Oklahoma.

CHEMICAL PROCESS ENGINEER
M.Ch.E. (European), 25 years' experience in leading positions in petroleum refineries, recently arrived in U.S.A., desires responsible position in process, development, research. Available immediately. Excellent records and references. Box C-476, The Oil and Gas Journal, Tulsa, Oklahoma.

SENIOR PETROLEUM ENGINEER, project management, product cost and equipment cost research. Diversified experience with major refineries, heavy equipment manufacturer, construction contractors and consulting management engineers. Foreign mission completed. Available August. Box C-472, The Oil and Gas Journal, Tulsa, Oklahoma.

SITUATIONS WANTED

SECRETARY, seven years experience, business administration degree, desires oil company position. Presently employed Tulsa. Box C-483, The Oil and Gas Journal, Tulsa, Oklahoma.

CPA, 32 years of age, married, good character and qualifications, wishes position with progressive firm. Will consider foreign duty. Box C-482, The Oil and Gas Journal, Tulsa, Oklahoma.

TREASURER or COMPTROLLER—C.P.A. of Ohio now supervising accountant with nationally known public accounting firm; 37; extensive experience, including taxes and personnel supervision, public experience principally with manufacturers and processors. $12,000 minimum. Desire connection with progressive and financially sound medium sized concern in midwest or southwest. Box C-481, The Oil and Gas Journal, Tulsa, Oklahoma.

SEISMOLOGIST: Graduate engineer with extensive experience as Party Chief and Supervisor desires connections with an oil company. Box C-473, The Oil and Gas Journal, Tulsa, Oklahoma.

SENIOR ENGINEER, graduate, 36, 15 years experience in production and development work, desires connection with independent oil company or oil field specialty company. Capable of administrative duties. Gulf Coast location preferred. Box C-479, The Oil and Gas Journal, Tulsa, Oklahoma.

LEASE AND DRILLING BLOCKS

ILLINOIS UPLIFT: Five test wells drilled testing Niagria lime, prove high varying 120', having four showing oil, in the hole. Want a test for Trenton at 2,200'. Have 2,000 acres real geology. Sam J. Burkitt, Moweaqua, Illinois.

LEASES: Proven, semi-proven, and wildcat in Campbell, Crook, Laramie, Goshen, Albany, and Platee Counties, Wyoming. Large drilling blocks or 40-acre tracts, priced to sell. These areas are scheduled for considerable exploratory development by major companies. Box 382, Cheyenne, Wyoming.

HAVE oil leases on structure 650 feet. Can give offsets. Will take override. Also 1600 acre block for deeper well. Box 86, Casey, Illinois.

SOUTHEASTERN NEW MEXICO
Leases, royalties and drilling blocks. Grant Keyes, 311 White Bldg., Roswell, New Mexico.

GEOLOGIST with valuable major company contacts desires to check block of acreage in Oklahoma, Texas, and Kansas. If attractive, can get wells drilled. Box C-478, The Oil and Gas Journal, Tulsa, Oklahoma.

WANT shallow drilling block—give full details in first letter—location and acreage, depth and thickness of pay sands—due date and amount of rentals. Box C-474, The Oil and Gas Journal, Tulsa, Oklahoma.

CAN deliver five year paidup leases on 50,000 potential oil producing acres. Structure map and log of 3,328' well showing five distinct oil bearing strata available. Lund Engineering Co., 2838 Potrero Rd., Phoenix, Arizona.

NEW Oil-Gas field being opened up in North Western Pennsylvania, north of wells drilled and now drilling. Many thousands of acres proven out for oil-gas. 40 feet sand. Interested party write for maps and particulars, worth your time and consideration. Address: Box C-480, The Oil and Gas Journal, Tulsa, Oklahoma.

LEASES ROYALTIES
PRODUCING OR NONPRODUCING
Texas, New Mexico, Oklahoma, Louisiana and Illinois.
Inquiries Invited
B. D. BUCKLEY
60 Broadview Drive, Clayton (5), St. Louis, Missouri

LEASE AND DRILLING BLOCKS

320 ACRES in Kansas, with Geology; close to production (130 producers, 6 dry holes in pool); major companies having offset acreage. Will give big interest for coring sand or will consider small overriding interest for completed well. Box C-456, The Oil and Gas Journal, Tulsa, Oklahoma.

ROYALTIES

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma

DEEDED ROYALTIES
San Juan Basin & Permian Basin. Write Harry S. Wright, Wright Bldg., Farmington, New Mexico.

WE will buy producing or non-producing oil royalties. Send particulars. Standard Security Company, 115 Broadway, New York 6.

LEGAL BLANKS

BURKHART LEGAL BLANKS since 1908. Oil-Gas (all states), Business, Real Estate, Legal Forms, Leases, Revised With Government Regulations, Commercial Printing, Catalog and Samples on Request. Burkhart Printing & Stationery Company, 115 South Cincinnati, Tulsa 3, Oklahoma.

PERSONAL

WANTED to Contact—Lon Huddleson, Geologist, and Byers Edwards, Driller. Box 152, Litchfield, Illinois.

REAL ESTATE

ONE of Austin, Texas', finest estates; large cut stone house, 2 acres of landscaped grounds. An ideal place to raise a family. Call or write Owner: 1901 Sul Ross Ave., Houston, Texas. Phone H-6398.

BUSINESS OPPORTUNITIES

OPPORTUNITY UNLIMITED
The best well servicing business in the state of Kansas is now for sale. Owner desires to concentrate on other business interests. Write Box C-484, The Oil and Gas Journal, Tulsa, Oklahoma, for appointment, as it will be necessary to see our equipment to fully appreciate this opportunity.

FOR SALE

ALUMINUM PAINT
200—5 Gallon Cans
An extremely high Quality Exterior-Interior Spar Varnish vehicle. Highly polished Lining Bronze Paste Aluminum pigment in separate container. Ideal for Brick, Wood or Metal. "IRON-CLAD IS SOLD ON A MONEY-BACK GUARANTEE."
Reg. price $4.95 gal.
Sell any part $2 gal.
NATIONAL
606 Walnut, Kansas City 6, Mo.

Barge Line Purchased

HOUSTON.—Assets of River Terminal Corp., which operates 30 barges and 8 tugs on Gulf Coast and Mississippi River waterways, have been acquired by Dixie Carriers, Inc., a newly formed company with headquarters in Houston.

Officers of the new company include B. M. Bloomfield, president and director; George A. Peterkin, vice president and director; Claude B. Hamill, director; Wesley W. West, director; Norman B. Adams, vice president, secretary, and treasurer; and R. L. Bowdoin, assistant secretary and treasurer. The new company indicated expansion of the inland water transportation operations is planned.

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CALENDAR OF EVENTS

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Appalachian Gas Measurement Short Course, eighth annual session, West Virginia University School of Mines, Morgantown, W. Va., August 30-September 1.

Interstate Oil Compact Commission, summer meeting, New York, August 30-September 1.

September

American Chemical Society, Division of Petroleum Chemistry, fall meeting, St. Louis, September 6-10.

The Instrument Society of America, third instrument conference and exhibit, Philadelphia Convention Hall, Philadelphia, September 13-17.

Pacific Coast Gas Association, annual convention, Hotel Casa del Rey, Santa Cruz, Calif., September 14-16.

American Petroleum Institute, Lubrication Committee, Hotel Traymore, Atlantic City, N. J., September 15-17.

National Petroleum Association, Hotel Traymore, Atlantic City, N. J., September 15-17.

Oklahoma Utilities Association, Gas Division, annual conference, Biltmore Hotel, Oklahoma City, September 17.

National Butane-Propane Association annual convention and trade exhibit, Congress Hotel, Chicago, Ill., September 20-22.

Independent Petroleum Association of America, annual meeting, Plaza Hotel, San Antonio, Tex., September 27-28.

October

American Society of Mechanical Engineers, petroleum division, Herring Hotel, Amarillo, Tex., October 3-6.

American Institute of Mining & Metallurgical Engineers, petroleum division, fall meeting, Adolphus Hotel, Dallas, October 4-6.

American Association of Petroleum Geologists, midyear meeting, technical session and 3-day field trip, William Penn Hotel, Pittsburgh, Pa., October 4-9.

American Gas Association, thirtieth annual convention, technical section, and exhibition of the Gas Appliance Manufacturers Association, Ambassador Hotel, Atlantic City, N. J., October 4-8.

California Natural Gasoline Association, twenty-fourth annual fall meeting, Ambassador Hotel, Los Angeles, Calif., October 8.

National Lubricating Grease Institute, sixteenth annual convention, Edgewater Beach Hotel, Chicago, October 11-13.

American Association of Oilwell Drilling Contractors, eighth annual meeting, Rice Hotel, Houston, October 11-13.

Texas Mid-Continent Oil and Gas Association, twenty-ninth annual meeting, Fort Worth, October 14-15.

American Institute of Mining and Metallurgical Engineers, petroleum division, Elks Club, Los Angeles, Calif., October 14-15.

Independent Natural Gas Association of America, annual meeting, Mayo Hotel, Tulsa, October 26.

November

American Society of Mechanical Engineers, fuels division, Greenbrier Hotel, White Sulphur Springs, W. Va., November 3-4.

Society of Automotive Engineers, fuels and lubricants division, Mayo Hotel, Tulsa, November 4-5.

American Petroleum Institute, annual meeting, Stevens Hotel, Chicago, November 8-11.

January 1949

Society of Automotive Engineers, annual meeting, Book-Cadillac Hotel, Detroit, Mich., January 10-14.

March 1949

New England Gas Association, Hotel Statler, Boston, March 24-25.

American Chemical Society, division of petroleum chemistry, spring meeting, San Francisco, March 27-April 1.

April 1949

National Petroleum Association, Hotel Cleveland, Cleveland, Ohio, April 13-15.

NOMADS

Houston Nomads, second Monday of each month, The Houston Club, Houston.

Los Angeles Nomads, second Wednesday each month, Jonathan Club.

New York Nomads: Golf party, Sept. 21, at Baltusrol Country Club, N. J.

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